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BY J. ELLIS BARKER

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JOHN MURRAY, LONDON

ECONOMIC STATESMANSHIP

THE GREAT INDUSTRIAL AND FINANCIAL PROBLEMS ARISING FROM THE WAR

By J. ELLIS BARKER

AUTHOR OF
"THE GREAT PROBLEMS OF BRITISH STATESMANSHIP," "MODERN GERMANY,"
"THE FOUNDATIONS OF GERMANY," ETC.

SECOND EDITION
CONTAINING TEN ADDITIONAL CHAPTERS

LONDON
JOHN MURRAY, ALBEMARLE STREET
1920

331·1
B 243

FIRST EDITION . . . *November*, 1918
SECOND EDITION . . . . *January*, 1920

DEDICATED

TO THE MEMORY OF THE LATE

EARL GREY

CONTENTS OF

"THE GREAT PROBLEMS OF BRITISH STATESMANSHIP"

THE COMPANION VOLUME TO THIS BOOK

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The Times.—"Mr. Barker is always well informed, and he brings wide reading and great industry to bear upon these questions, which are at the moment of such vital importance, and all that he says is worth attention."

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The Glasgow Herald.—"No one in the decade preceding the war did more to warn Great Britain and the world at ge of the designs of world-domination cherished by many than Mr. J. Ellis Barker."

PREFACE TO THE SECOND EDITION

Economic Statesmanship has been very kindly received by both Press and public. The 1,800 copies of the first edition were quickly sold out, and as there was a continued demand for the book the question of a new edition had to be considered.

Some of my critics, while giving unstinted praise to the work, expressed regret that I had not treated in it various important economic problems which have come to the forefront since the time when the book went to press. Others complained that I had not made use of the numerous and very valuable reports published by the British Board of Trade and the Ministry of Reconstruction, the majority of which, unfortunately, appeared too late for consideration and use. As they had urged me to make good these omissions should a new edition be called for, I reluctantly resolved to undertake the labour of expanding and improving the second edition in accordance with their wishes.

The present edition is a very greatly enlarged one. Ten chapters, running to more than 200 pages, have been added to the original fifteen chapters. About 100 pages of new matter are devoted to an examination of the economic position and future of Russia and of Japan, to the problem of the British Merchant Marine and of the British Inland Transport System, to the Brit[illegible] Problem, and to the Land and Housing Problem [illegible] c basis. and country. In another 100 pages the relati[illegible] study of

Capital and Labour are exhaustively discussed. Particular attention is given to the roots of national prosperity, to the limitation of output, to the recent anti-capitalist agitation, and to the demands for the nationalisation of industries, for the penal taxation of wealth and income, and for the institution of a six-hour day.

The 200 pages added possess two special features: Firstly, they contain valuable extracts from all the Reports of the various expert Committees which, towards the end of the War, were appointed by the Government to inquire into the position and future of the British industries and of the trade of the world. Secondly, in two lengthy chapters entitled "Labour Unrest: Its Causes and Its Permanent Cure," I have endeavoured to analyse the causes of the trouble in the industrial world and to propose a scheme for the permanent conciliation of Capital and Labour which, I hope, may be found to be practical, workable, logical, and inevitable.

As intending purchasers who possess the first edition may wish to be able to differentiate at a glance the new matter from the old, I thought it only fair to make this easy for them. I have therefore not sandwiched the chapters among the old, but, disregarding their proper and logical sequence, have placed them all at the end of the book. The old matter ends on page 399, and the new chapters begin on page 400 and run on to the end.

Mr. W. F. W. King, who at the time belonged to the 15th Tank Battalion, has very kindly drawn my attention to a number of misprints and mistakes, and has made some valuable suggestions, which I have carried out as far as possible, and for which I would express to him my very best thanks.

J. ELLIS BARKER.

ber, 1919.

PREFACE TO THE FIRST EDITION

NATIONAL economy is obviously a part, and a most important part, of practical statesmanship. In the following pages the great industrial and financial problems which have arisen owing to the War are discussed from the statesman's point of view. General principles may be popular among the well-meaning but ill-informed, and they may win the votes of the multitude, especially if they lend themselves to being converted into resounding and easily remembered catchwords. However, the success of a business policy depends not upon its attractiveness and its plausibility, but upon its soundness, upon exact information, upon facts. Therefore, the following pages are filled not with delusive generalities, but with documentary and statistical evidence, with authoritative pronouncements and data, which are rather inaccessible to most. The present book is a companion volume to *The Great Problems of British Statesmanship*, of which the second edition was recently published by Mr. John Murray.

It is dangerous to experiment upon the body politic. In matters economic prosaic experience is a safer guide than abstract speculation. The Americans have been extraordinarily successful in economic endeavour and in the art of Empire building. In a little more than a century they have reared the most powerful and the wealthiest State in the world on the broadest democratic basis. Invaluable lessons may be learned from the study of

American affairs. The feature of this book is that it analyses the causes of America's success and that it considers the great economic problems of the future in the light of American experience, so that England and the Empire may learn from America's example.

The present volume owes its origin to that great and good man, the late Earl Grey. Having attracted his attention by my advocacy of Imperial organisation and of an Anglo-American reunion, he induced me to spend six months in the United States and in Canada in order to study their political, social, and economic conditions. He furnished me with the best introductions, and I promised him to embody my impressions in a book. My knowledge of American affairs is largely due to Lord Grey's action. Had he been spared, I should have dedicated to him this volume, which, gratefully and sorrowfully, I now inscribe to his memory.

Although the bulk of the volume has previously appeared in the *Nineteenth Century and After* and the *Fortnightly Review*, this work is not a collection of disjointed essays. The original articles were written with a view to their subsequent publication in book form, and I would very sincerely thank the editors of the periodicals mentioned for allowing me to reprint my contributions.

The contents of this book are, for the convenience of readers, briefly summarised in the Introduction. A full Analytical Index at the end of the volume should facilitate its use as a work of reference.

J. ELLIS BARKER.

LONDON,
October, 1918.

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ECONOMIC STATESMANSHIP

CHAPTER I

INTRODUCTION

THE War has shown even to the blindest that military power and economic strength are exceedingly closely interwoven, that wars may be lost or won not only on the battlefield, but also in the school, the laboratory, the mine, the mill, and the factory. It follows that the policy of *laissez faire*, the policy of drift in economic matters, in which the security of the State is subordinated to the liberty of action of individuals who merely strive to benefit themselves, has become discredited. The policy of *laissez faire*, of individualism, is a policy which may be summed up in the phrase, " Everyone for himself." At last it has become clear even to the most narrow-minded individualists that nation-wide co-operation, the harmonised and ordered effort of all the citizens for the furtherance of the common good, is a more potent factor for ensuring the national welfare than unfettered competition, an internecine war of all against all, the *bellum omnium contra omnes* of Thomas Hobbes.

Not so very long ago the United Kingdom was by far the largest producer of iron and steel in the world, but during the last few decades her predominance in the iron and steel industry has disappeared. Great Britain allowed the German iron and steel industry to overtake the British industry. Those who pointed out that wars are made with iron and steel, that a war with Germany was almost inevitable, and who warned England, as I have unceasingly done ever since 1900, of the danger which she would run owing to the insufficient strength of her iron industry in case of a war with Germany, were told by the British advocates of the policy of *laissez faire*, of drift and neglect, that they were seeing ghosts, that there would be no war between England and Germany, that the relative decline of the British iron industry did not matter, that other British industries, such as cotton manufacturing and ship building, were exceedingly prosperous and were more profitable than iron making.

While England, oblivious of the fact that modern military power, and modern industrial power as well, is based upon iron, allowed her iron and steel industry to stagnate and to decline if compared with the iron industry in Germany and the United States, the German Government fostered the native iron industry with all means in its power. The result of energetic and planful development in Germany and of Governmental indifference and neglect in England was that at the outbreak of war Germany manufactured fully twice as much iron and steel as did Great Britain, that in iron and steel Germany was twice as strong as the United Kingdom. The vast strength of Germany which the War revealed was largely due to the gigantic power of that country's iron and steel industry. Had the United Kingdom, in 1914, possessed that overwhelming superiority in the iron and steel industries which she had in 1880, Germany would never have dared to challenge her.

In the modern world the military power of nations depends very largely on their industrial power. As modern industry is based upon the lavish use of coal and iron, only those nations can become industrially and militarily powerful which possess, or control, ample stores of coal and of iron ore. The great coal and iron mines are, rightly considered, Nature's power-house and Nature's arsenal. Germany owes her great industrial prosperity, and her extraordinary military strength as well, largely to the fact that she had within her frontiers of 1914 very extensive iron mines, and by far the largest coal deposits in Europe. Her store of coal was in 1914 twice as large as that of the United Kingdom. All the most important coal fields and iron mines on the Continent of Europe are situated either in Germany or close to Germany's borders. After the outbreak of the War Germany seized the principal coal and iron mines of Belgium, France, Poland and Russia. Thus she obtained almost a monopoly in the production of coal and iron on the European Continent, and her leaders declared that Germany would retain the conquered coal and iron fields, the possession of which would make Germany absolutely predominant in Europe, both militarily and industrially, and would at the same time permanently disarm her opponents.

Taught by the bitter experience of war, the statesmen of the nations leagued against Germany, who had hitherto disregarded the vast importance of the economic factor as a source of political and military power, have begun to recognise the influence of coal and iron upon statesmanship, upon national greatness, strength and influence. Germany's principal coal and iron deposits are situated close to her frontiers of 1914. By far her largest iron mines are found in Lorraine, and nearly one-half of Germany's coal occurs in the Polish part of the Province of Silesia. The nation which dominates coal and iron may dominate the world. France and Italy are extraordinarily poor in coal. That fact alone explains their insufficient military and industrial strength. The settlement at the peace, should lead not only to territorial rearrangements in accordance with the principle of nationality, but to rearrangements on economic, and especially on mineralogical, grounds as well. The various aspects of the coal and iron problem, and the influence of coal and iron upon national wealth, strength, and population increase will be found discussed in the first chapter, "Coal, Iron—and the Domination of the World."

Many weak and short-sighted men, prompted by financial timorousness, have advocated "a peace by negotiation." They have told us that Great Britain was unable to continue the war because her trade, industries and finances would be ruined. They have told us that the people would be overwhelmed by the gigantic burden of the War Debt, which indeed threatens to approximate what is usually, but mistakenly, called the British National Wealth. In Chapter III., entitled "Britain's True Wealth and the Relative Unimportance of the War Debt," I have endeavoured to show that these fears are utterly unfounded. The British War Debt, however large it may be, will be limited in amount, while the wealth of the British people, as that of every vigorous and advancing nation, is susceptible to indefinite expansion, is unlimited, and is absolutely immeasurable. According to the best statistics available the so-called national wealth of the United Kingdom has grown tenfold during the last century, and it should grow considerably more than tenfold during the coming century, because the vast improvements made in all productive processes are bound to accelerate increasingly the accumulation of wealth. Her National Debt, however large it may be, will not impoverish Great Britain if she is victorious and if she retains her great wealth-creating resources. A complete victory will be financially far more advantageous than a mere stopgap peace.

The War has been fought for the British Empire, for the British race. It is, therefore, only fair that all parts of the Empire should share in bearing the burden of the War Debt in accordance with their economic strength. The potential wealth of the British Empire is absolutely unfathomable. During the last century the wealth of the United States has statistically grown about a hundred-fold. Hence the wealth of the British Empire should increase at a similar, and perhaps at a faster, rate during the coming century, provided the Dominions and Colonies be developed with American energy and ability, and in accordance with the American example. History teaches us that successful wars, however costly, do not impoverish, but enrich, nations possessed of energy and of great national resources. The Napoleonic War created the industrial greatness of the United Kingdom, and the terribly costly Civil War that of the United States. The present war should not prove an exception to the general rule.

Peace and ease beget sloth. Hard times beget energy and intelligent exertion. Increased taxation should act as a powerful spur to production, and should lead to a rapid increase of the national income and of the national wealth. In Chapters IV. and V. I have endeavoured to show that British Agricultural production can be vastly increased, and that British industrial production can easily be trebled, by introducing the best American industrial methods and the most powerful American machinery. Trebled production, which is perfectly feasible throughout the United Kingdom, should treble the income of masters and workers, should treble the comforts of the people, should treble the national income and the national wealth, and should more than treble the taxable capacity of the people. The Americanisation of the British industries has already begun, and it has vastly benefited the national industries and the workers engaged in them.

The rapid development of the vast territories of the United States, which not long ago were a wilderness, is due chiefly to the energetic and far-sighted railway policy pursued by the American Government and people. The Great Republic has a far larger mileage of railways than has the whole of the British Empire, although the area of the British Empire is four times as great as that of the United States. Needless to say, the energetic development of the British Imperial railway system would greatly benefit not only the thinly populated territories across the sea, but would prove extremely advantageous to the British iron and steel industry, and to industry and trade in general throughout the Empire. The American railways are exceedingly efficient. They charge the lowest freight rates in the world, while the British railways are exceedingly inefficient, and are hampering the development of the national industries by their extraordinarily and scandalously high charges, which are the natural result of their inefficiency. The reform of the British and of the Imperial transport system in accordance with the example set by the American Railways, the activities of which are described in Chapter IV., should have the happiest results upon Motherland and Empire.

The intellectual and the material progress of nations depends partly on the inborn gifts of the people, partly, and very largely, on their acquired abilities and character, on their moral and practical education. The wonderful economic success of the United States is undoubtedly very largely due to their wonderful educational system. Education may be either autocratic or democratic. Hitherto British educationalists have endeavoured, and I think mistakenly, to shape British education upon the model of autocratic Prussia. They may learn much from the democratic educational system of the United States, as I have endeavoured to show in Chapter VI., entitled "Education and Economic Success."

An industrial nation can flourish only if employers and employed, capital and labour, work together in cordial harmony. The future relations between the directors of the national industries and their workers are considered in Chapter VII., entitled "Labour and Capital after the War." The workers of a nation cannot be expected to do their best unless they are satisfied, and they cannot be expected to be satisfied unless they are prosperous. Underpaid labour is inefficient labour. Nothing is more wasteful on the part of an industrial nation than to allow its workers to live in poverty. Before the war millions of British workers, especially the unskilled and the agricultural labourers, lived not merely in poverty, but in want. Unfortunately, the British workers have hitherto, owing to socialist teachings, seen in the directors of industry and in the capitalists not a useful and necessary class, but an enemy, and their leaders have taught them the extraordinary doctrine that the workers can benefit themselves most by insisting upon the highest possible wage in exchange for the lowest possible production. Wishing "to make the work go round," British workers have systematically restricted their output, and have opposed the introduction of the most perfect labour-saving machinery, whereas the American workers have insisted upon large wages, but have willingly worked the most powerful and the most modern machinery at its full speed. The result has been that the output of the American workers has, as I have shown by exact and reliable figures, been three times as great as the output of the British workers engaged in identical callings. In other words, a single American worker has produced as large a quality of goods as three British workers employed in the corresponding industry.

The prosperity of the workers depends obviously not on the nominal amount of their wages, but on their purchasing power, for people cannot eat money. The prosperity of the masses is seen not by high money wages, but by high individual consumption. Money is merely a symbol, a token, which in itself is valueless. High consumption among the masses of a nation is, of course, impossible unless there is a correspondingly high national production. Low national production means poverty to the workers whatever the nominal amount of the money wages may be. The wages of the American workers were before the war about three times as high as were British wages, because the American workers produced three times as much as their British colleagues, and, producing three times as much as the British workers, they consumed approximately three times as much. Happily the British workers and the majority of their leaders have begun to recognise that in industrial matters they have mistaken the shadow for the substance, that they have followed a suicidal policy in restricting output, that prosperity among the workers requires that the goods produced in field, mine and factory should be plentiful, not scarce. Hitherto the British workers have injured the national industries, the capitalists, the middlemen, and especially themselves, by acting like greedy speculators, by creating an artificial scarcity of goods.

After the War Great Britain will presumably impose a Protective Tariff upon certain imports, giving a preference to the Dominions and Colonies and to her Allies. Those who oppose the reintroduction of a Protective Tariff base their attitude mainly upon certain assertions which, at first sight, seem very plausible. For instance, they maintain that Free Trade has given Great Britain her great cotton industry, and that Protection would destroy it; that Free Trade has given England her maritime supremacy, while Protection has ruined the formerly so flourishing ship-building and ship-building industries of the United States, etc. The question how a Protective Tariff would affect the British cotton industry is discussed at length in Chapter VIII., "Would a Tariff harm Lancashire?" I have endeavoured to show in it that the fears of the Free Traders regarding the British cotton industry are unjustified. The effect of Protection and Free Trade upon shipping is considered in Chapter IX., "The British and American Merchant Marine." I have shown in it that the decline of the American ship-building industry was caused by the combined effect of the Civil War and of the advent of the iron ship at a time when England dominated the iron industry of the world, and when the American iron industry was quite insignificant. Moreover the wages of the American shipbuilders and of the American sailors were so much higher than the corresponding British wages that the American shipping trade could not compete with the British shipping trade, although the American shipping industry had been given free imports for all the materials, etc., required in the building and the fitting out of ships.

France has suffered terribly through the War. A prosperous and powerful France is necessary for the peace of the world, for there ought to be an adequate counterpoise to Germany on the Continent of Europe. Unfortunately the population of France has remained practically stationary for many decades, while that of Germany has rapidly increased. If the population of France should continue stagnating and that of Germany should continue progressing as quickly as it has done hitherto, France would sink to the place of a second-rate or a third-rate Power within a few decades. In Chapter X., entitled "The Economic Position and Future of France," I have tried to show that the stagnation of the French population and the rapid increase of the population of Germany is largely, and probably principally, due to economic causes. The vast increase of the German people has taken place exclusively in the towns, and especially in the large towns, in the manufacturing centres. The population of the German agricultural districts has remained as stationary as that of France. The rapid increase of the German population was made possible by the equally rapid expansion of the German manufacturing industries, and the progress of the German manufacturing industries was due to Germany's vast wealth in coal. While Germany has a superabundance of excellent and cheap coal, France, like Italy, suffers from a scarcity of that indispensable mineral. Hence France, like Italy, was unable to develop those large manufacturing industries which create the prosperity of modern nations, and enable them to increase their population very greatly. A political and military balance between France and Germany can obviously most easily be created by transferring part of the superabundant mineral wealth possessed by Germany to France. Such a transfer might, and very likely would, lead to a slackening in the increase of the German race and to an expansion of the French race.

In Chapter XI., entitled "The Problem of Alsace-Lorraine," I have dealt very fully with the problem whether the population of these two provinces is French or German in character, and I have shown that, although it is undoubtedly German by race and language, it is French by choice and affection. Since 1871 approximately 700,000 people, half of them women, have emigrated from Alsace-Lorraine, and nearly all of them have gone to France. If democracy means government in accordance with the will of the people, it is obvious that Alsace-Lorraine should be returned to France, because the people detest their German rulers, and wish to be reunited to France. Alsace-Lorraine possesses exceedingly valuable mineral resources, especially gigantic deposits of excellent iron ore. In addition, she has large quantities of potash and mineral oil. As iron is indispensable for warfare, a war of revenge on Germany's part could most easily be prevented by transferring the great iron deposits of Lorraine from Germany to France.

The economic position of Italy is one of very great difficulty. That beautiful country is equally poor in agricultural and in industrial resources. The development of agriculture is impeded by the fact that the larger part of the country consists of steep and barren mountains, and that the plains consist largely of fever-stricken swamps. The seas around Italy's coast contain little fish, and the country is exceedingly poor in minerals. Italy possesses only a trifling quantity of iron ore and practically no coal. As Italy is one of the most densely populated countries in the world—per square mile the population is almost as great as that of the United Kingdom—the Italians live in poverty. Their position will be a difficult one after the conclusion of peace. Lacking raw products of every kind, and being unable to produce in the country the food required, the Italians have made a living largely by producing for sale abroad luxuries which require much labour and little raw material. They have exported food luxuries such as oranges, lemons, olive oil, etc., and manufactured luxuries such as silks, artistic furniture, and so forth. After the war all nations will have to practise economy. They will naturally discourage the consumption of luxuries, and especially of imported luxuries, to the grave disadvantage of Italy.

Italy's poverty is due to the insufficiency of her natural resources. If, at the peace, she should find herself burdened with a huge national debt, and if, at the same time, those valuable expanding industries which she has created should be crippled, her sufferings would be terrible. Her people would have to emigrate in millions. The Allies possess obviously a superabundance of territory and of mineral resources. It seems only just that the United Powers should come to Italy's help by developing those resources, such as water powers, which she possesses, and by providing the country with an adequacy of agricultural soil and of the most necessary raw material, especially coal. The principal data relating to this problem will be found in Chapter XII., "The Economic Position and Future of Italy."

The cost of the war to the Allies may approximate £50,000,000,000, an amount which is three times as large as Germany's national wealth was estimated to be in 1914. It is frequently asserted that at the end of the war Germany will be ruined, and that she cannot pay for a tithe of the damage she has done. In Chapters XIII. and XIV., entitled "Can Germany pay an Indemnity?" I have shown that the value of Germany's coal, iron ore and potash alone should come to £237,678,000,000, a sum which is about fifteen times as large as the so-called national wealth of the United Kingdom was supposed to be at the outbreak of the war. Germany can pay for all the damage she has done in goods, especially in raw materials. After all, goods are more valuable than money. Money is only valuable because of the goods which it will buy. Germany has shown her appreciation of the value of raw materials by ruthlessly confiscating the coal, the iron ore, the petroleum, and the harvests of her opponents. She has thus created a precedent which she may live to regret.

CHAPTER II

COAL, IRON—AND THE DOMINATION OF THE WORLD*

COAL and iron are the twin foundations of the modern manufacturing industries and of modern commerce, and they are at the same time the principal sources of national power, wealth, and population, and, therefore, of national armed strength. The pre-eminence of the Anglo-Saxon nations and of Germany in the manufacturing industries, in wealth, and in national power is due not merely to racial causes, as is often asserted, but largely, and probably principally, to a mineralogical cause—to the fact that Providence has given gigantic deposits of coal and iron to the United States, to Great Britain, and to Germany, and only insignificant deposits to the Latin peoples, both in Europe and America, and to the Slavonic nations. Professor C. R. van Hise, of Wisconsin University, stated in his excellent book *The Conservation of the Natural Resources of the United States*, published in 1910:

> "Coal is by far the most important of all the mineral products. Next to coal in importance is iron. These two are of much greater consequence than all the other mineral products together. The existence of extensive coal and iron fields has profoundly influenced modern civilisation. The greatest commercial nations are Germany, England, and America, and each has extensive coal and iron deposits. . . . It has been said that the nations that have coal and iron will rule the world."

From *The Nineteenth Century and After*, April, 1918.

The great majority of historians and of political writers have completely neglected the influence of the economic factor upon history. According to popular conception, the wars of the past have been caused mainly by the unrestrained ambitions of rulers and their generals, by the intrigues of statesmen and courtiers, by national passions, or by mere misunderstandings. In reality many, and very likely most, wars have been brought about by economic causes, have been wars of competition.

Since the dawn of civilisation tribes and nations have contended for those economic resources which at the time were most prized by men. In primitive, pastoral times nations fought one another for flocks and herds, for grazing-grounds and drinking-water, for fruitful valleys and slaves, as we may learn from the Bible and other ancient documents. When civilisation progressed, they fought one another for great agricultural resources, for the possession of valleys and plains abundant in grain, such as the valley of the Nile and that of the Euphrates, for the North German plain, the Hungarian plain, and the plain of Lombardy. Primitive maritime nations fought one another for fishing-grounds, as did the early Dutch and the Hanseatic League. When commerce progressed, they fought one another for trade and colonies; for the control of rivers, such as the Rhine, and of harbours, such as Antwerp; for trading settlements and for trading monopolies, for the spice trade and the slave trade, for naval bases and for world-strategical positions whence the world's trade may be controlled. Rome and Carthage made war upon one another, not for the domination of the world, as is generally believed, but, as we may learn from Polybius, for the possession of the prolific wheatlands of Sicily, which both States required urgently for their clamouring townsmen who were dependent upon imported food. Athens engaged in her disastrous war with Syracuse probably not through lust of domination, but in order to provide the teeming population of Attica with the necessary bread. The war of the Greeks against Troy also was probably waged for economic reasons. Ancient Greece received at one time her grain from the Black Sea. Very probably Troy controlled the Narrows and the grain trade, and the Greeks fought for the freedom of that trade.

As the nations have in the past fought for bread and fish, meat and spices, commerce and colonies, it seems only natural that in the industrial era, in the age of coal and iron, States should fight for the possession and control of those precious minerals which supply nations with wealth, strength, and an abundant population. The political and military value of the control of coal and iron has not yet been sufficiently appreciated by the statesmen of most nations, those of Germany excepted. Most diplomatists and publicists still think that the principal aim of a conquering nation is territory and population, as if we were still living in the agricultural age. The Germans recognised at an early date that the possession of an abundance of coal and iron can provide nations with wealth and power, railways and ships, implements and arms, and a vast population; that coal and iron are Nature's power-house and arsenal; that the lack of coal and iron condemns nations to stagnation in population and industry, in wealth and power, and almost disarms them. Germany fights, as will be shown in the following pages, largely for the object of securing for herself practically all the coal and iron on the Continent of Europe, and she means to leave the other nations of Europe as far as possible without coal and iron, so that they may be economically, and therefore militarily too, in the power of Germany, who alone would dispose of Nature's own arsenal.

"Providence," as Napoleon has told us, "fights as a rule on the side of the larger battalions." Given equality in arms, equipment, organisation, and direction, supremacy in man-power is apt to be decisive in war. The size of armies depends on that of the civil population from which they are drawn. Formerly, when men lived chiefly by agriculture, ambitious rulers strove to increase their population by seizing districts where an abundance of food could be grown. In the age of coal and iron, agricultural territories are less important to ambitious States for the purpose of rearing a prolific population. Nowadays population increases not so much in districts where wheat is grown as in those where coal and iron are used. The effect upon population of the introduction of modern manufacturing based on coal may be seen in the case of England and Wales by the following figures:

INHABITANTS OF ENGLAND AND WALES.

1600	4,811,718
1700	6,045,008
1760	6,479,730
1801	8,872,980
1841	16,011,757
1881	25,974,439
1911	36,070,492

During the hundred years from 1600 to 1700 the population of England and Wales, which at the time lived chiefly by agriculture and a little commerce and shipping, grew only by 25 per cent. During the 160 years from 1600 to 1760, when conditions were very similar, it grew by only about 35 per cent. The industrial revolution, the introduction of modern manufacturing by means of machinery based upon coal, is usually assumed to have begun about 1760. During the 151 years which separate 1760 from 1911, the population of England and Wales grew, not by 35 per cent., as it did in the 160 years previously, but by 455 per cent. It doubled in the forty years from 1801 to 1841. During the 110 years from 1801 to 1911 the population of England and Wales has more than quadrupled, and it has done so almost exclusively in the manufacturing and commercial districts, especially in the former. The agricultural portions of the country are probably now less populous than they were in 1801, partly because agriculture has been neglected, but chiefly because by the use of modern machinery one agricultural labourer can now do the work of several labourers. While between 1801 and 1911 the population of England and Wales has grown fourfold, that of the principal manufacturing and trading towns has grown eight-, nine-, tenfold and more. Between 1801 and 1911 the population of Manchester and Salford has increased from 94,876 to 945,690, that of Liverpool from 82,295 to 746,421, that of Birmingham from 70,660 to 525,833, that of Leeds from 53,162 to 445,550, that of Sheffield from 45,755 to 454,632, that of Bradford from 13,264 to 288,458, that of Nottingham from 28,861 to 259,904.

In Germany also the vast increase of the population has taken place exclusively in the towns. Between 1880 and 1910 Germany's agriculture has expanded mightily. The production of vegetable and of animal food has doubled. Yet, although between 1880 and 1910 Germany's population has increased by 19,500,000, the country population proper has decreased by about 600,000. The whole increase has taken place in the towns, and particularly in the large and the very large towns. Between 1880 and 1910 the population of Hamburg has increased from 289,859 to 931,035, that of Leipzig from 149,081 to 589,850, that of Cologne from 144,772 to 516,527, that of Frankfort from 136,819 to 414,576, that of Düsseldorf from 95,458 to 358.728. that of Essen from 56,944 to 294,663, that of Duisburg from 41,242 to 229,483, that of Dortmund from 66,554 to 214,226, that of Gelsenkirchen from 14,615 to 169,513, that of Bochum from 33,440 to 136,931. In 1880 only 3,273,144 people lived in German towns of 100,000 inhabitants and more. In 1910 13,823,348 lived in towns of 100,000 or more.

Even in the United States the population of the towns is rapidly overtaking that of the country, notwithstanding the gigantic agricultural area of the Great Republic and the vast progress effected by its most prosperous rural industries. The United States, like England and Germany, are growing chiefly in the towns, owing to an abundant supply of coal and iron, especially coal, while the agricultural population is comparatively stagnant Between 1860 and 1910, while the population of the United States has grown from 31,443,321 to 91,972,266, or has not quite trebled, the population of New York has increased from 1,174,779 to 4,766,883, that of Chicago from 109,260 to 2,185,283, that of Los Angeles from 4,385 to 319,198, that of St. Louis from 160,773 to 687,029, that of Boston from 177,840 to 670,585, that of Cleveland from 43,417 to 560,663, that of Buffalo from 81,129 to 423,715, that of San Francisco from 56,802 to 416,912, that of Pittsburg from 77,923 to 533,905, that of Detroit from 45,619 to 465,766, that of Indianapolis from 18,611 to 233,650, that of St. Paul from 10,401 to 214,744, that of Denver from 4,759 to 213,381, etc.

It is significant that throughout the world population is densest on and around the actively exploited coalfields.

In former times men lived by the work of their hands. Now they live by the work of their machines. A man employing powerful machinery can produce in field and factory as much as a number of men can produce without its help. Consequently the States in which the employment of machinery has been most advanced and has become most general possess the most productive, the most prosperous, and the most advanced citizens, and owing to their great and rapidly increasing prosperity the inhabitants have increased at a very fast rate; while in those countries which lack machinery, production, wealth, and population have increased extremely slowly and have sometimes become stagnant. That may be seen by the example of France, which is very poor in coal. As the progress of nations in wealth, strength, and population depends on machinery, which is made chiefly of iron and steel and which requires vast quantities of coal, it follows that the intensive and general use of machinery is possible only in countries in which iron and coal, and especially the latter, are abundant.

It is not generally realised that the bulk of the coal mined is used, not for domestic, but for industrial purposes. The Royal Commission on Coal Supplies gave some years ago the following most interesting estimate.

COAL CONSUMPTION IN UNITED KINGDOM IN 1903.

	Tons.
For railways	13,000,000
For coasting steamers (bunkers)	2,000,000
For factories	53,000,000
For mines	18,000,000
For iron and steel industries	28,000,000
For other metals and minerals	1,000,000
For brickworks, potteries, glassworks, chemical works	5,000,000
For gasworks	15,000,000
For domestic purposes	32,000,000
	167,000,000

In the United Kingdom less than one-fifth of the coal used in 1903 was employed for domestic purposes, and with every year industrial consumption should increase at a more rapid rate than domestic consumption, owing to the ever-growing intensification in the use of steam-power.

If we wish to gauge the vast and ever-growing importance of coal for national purposes, and especially for industrial and commercial requirements, we should consider not merely the employment of coal in a single year in a single country, but should study its progressive consumption throughout the world From the best statistics available it appears that the production of coal, and therefore its consumption too, has increased as follows in the most important countries and throughout the world:

Year.	*United Kingdom*	*Germany*	*United States*	*Austria-Hungary.*
	Tons	*Tons*	*Tons*	*Tons.*
1865	99,760,000	28,330,000	21,790,000	2,030,000
1875	135,490,000	48,530,000	48,200,000	13,060,000
1885	161,960,000	73,670,000	112,180,000	20,430,000
1895	193,350,000	103,960,000	177,590,000	27,250,000
1905	239,890,000	173,660,000	351,120,000	40,720,000
1913	287,410,000	273,650,000	504,520,000	51,580,000

Year.	*France.*	*Russia.*	*Belgium*	*Other Countries.*
	Tons.	*Tons.*	*Tons*	*Tons.*
1865	11,840,000	330,000	11,840,000	3,160,000
1875	16,950,000	1,170,000	15,010,000	6,890,000
1885	19,510,000	4,240,000	17,440,000	13,390,000
1895	28,240,000	9,100,000	20,410,000	20,220,000
1905	36,050,000	17,120,000	21,840,000	45,620,000
1913	40,190,000	29,870,000	22,500,000	111,280,000

TOTAL COAL PRODUCTION.

Year.	*Tons.*
1865	182,080,000
1875	285,300,000
1885	412,820,000
1895	581,120,000
1905	928,020,000
1913	1,321,000,000

In 1865 manufacturing by means of coal-using machinery was already highly developed Between 1865 and 1913, within the memory of many living men, the consumption of coal has increased from 182,000,000 tons to 1,321,000,000 tons, or has grown more than sevenfold

The industrial progress of nations can best be measured by their coal production, and especially by their coal consumption. Between 1865 and 1913 coal production has increased threefold in the United Kingdom, tenfold in Germany, and no less than twentyfold in the United States. In 1865 the United Kingdom alone produced 55 per cent. of the world's coal. At that time England was still, as Cobden called it, the workshop of the world. In 1913 the United Kingdom produced only 22 per cent. of the world's coal. It was no longer the world's workshop.

The vast progress of the Anglo-Saxon nations and of Germany in the manufacturing industries, commerce, wealth, strength, and population can easily be explained by their remarkable preponderance in coal. In 1913 the United States, Germany, and the United Kingdom combined produced 80½ per cent. of the world's coal, while British India and the Dominions produced 53,710,000 tons of coal, or 4½ per cent. of the world's output. During the year previous to the War, the Anglo-Saxon nations and Germany combined raised, therefore, 85 per cent. of the world's coal, and the rest of the world only 15 per cent. In other words, the Anglo-Saxon nations and

Germany were producing six times as much coal as all the other nations of the world together. They possessed, therefore, roughly speaking, a similarly great preponderance in engine-power and in modern power of production. The supremacy of the Anglo-Saxon and German peoples in all the material elements of life and the rapid increase of their population are obviously due not so much to their genius as to chance, not so much to racial as to mineralogical causes.

In 1865 the United Kingdom was by far the largest coal-producer and coal-user in the world. Lately the first place has been taken by the United States, the industrial and commercial progress of which has been most remarkable. According to the very full American Government statistics, coal production in the Republic has increased as follows:

Year.	*Tons.*
1814	20
1820	3,080
1830	285,779
1840	1,848,249
1850	6,266,233
1860	13,044,680
1870	29,496,054
1880	63,822,830
1890	140,866,931
1900	240,789,310
1910	447,853,909
1913	504,520,000

Not unnaturally America's industries, wealth, strength, and population also have increased at an extraordinarily rapid rate in accordance with the increase of the national coal consumption.

Coal production depends mainly upon two factors: upon the quantity and quality of coal contained in the soil, and upon the greater or lesser facility with which the coalfields can be exploited. Coal strata which lie at a very great depth, or which are exceedingly thin and full of vaults through geological disturbance, or which are liable to be flooded owing to the nature of the surrounding soil, are, of course, less valuable than deposits in which the coal occurs in thick and easily workable layers close to the surface.

As it would lead too far to compare the coal deposits possessed by the different nations with regard to the quality of the coal and the greater or lesser facility of exploiting them, we must be content to disregard these important but highly technical factors, and to compare summarily the stores of coal possessed by the nations of the world. The most authoritative and most recent inventory of the world's riches in coal is contained in the magnificent three-volume monograph *Coal Resources of the World*, which was placed before the International Geological Congress held in Canada in 1913 I have extracted from it the following figures:

THE WORLD'S COAL RESOURCES.

	Tons.
In Europe	784,190,000,000
In North America	5,073,426,000,000
In South America	32,102,000,000
In Asia	1,279,586,000,000
In Africa	57,839,000,000
In Australia and Oceania	170,410,000,000
Total	7,397,553,000,000

It will be noticed that North America possesses, according to the present state of geological knowledge, two-thirds of the coal of the world. South America, Australia, and Africa, the soil of which, however, has not yet been sufficiently explored, contain, apparently, only little coal. Second in importance to the North American coal-measures are the coalfields of Asia. The richest coal deposits on the Asiatic continent occur in China. The province of Shansi, near Kiau Chau, is particularly rich not only in excellent coal, but in iron ore as well. Germany seized Kiau Chau not in order to compete with Hongkong—trade is a very unimportant source of national wealth and strength if compared with production—but in order to control and exploit some of the largest and most valuable coal and iron deposits in the world with the help of cheap Chinese labour. An iron- and coal-producing India would obviously be infinitely more valuable than an India producing rice and millet, cattle and cotton.

The European coalfields rank third in importance. They are inferior to those of Asia, and they are unimportant if compared with the gigantic deposits of North America. If coal should continue to be the principal source of mechanical power—and there is at present no indication that it will be superseded by electricity or the force derivable from the tides and the sun's rays—North America is likely to become not only the world's principal seat of the manufacturing industries and of wealth, but the world's principal centre of population and of military power as well. In a century or two Europe may occupy a secondary position in the world owing to its relative poverty in coal.

Now let us study in greater detail the distribution of coal among the various nations:

Coal Resources of Europe.

	Tons.
Germany	423,356,000,000
Great Britain and Ireland	189,535,000,000
Russia	60,106,000,000
Austria-Hungary	59,269,000,000
France	17,583,000,000
Belgium	11,000,000,000
Spain	8,768,000,000

	Tons.
Spitzbergen	8,750,000,000
Holland	4,402,000,000
Balkan States	996,000,000
Italy	243,000,000
Sweden, Denmark, and Portugal	184,000,000
Total	784,192,000,000

COAL RESOURCES OF NORTH AMERICA.

United States	3,838,657,000,000
Canada	1,234,269,000,000
Newfoundland	500,000,000
Total	5,073,426,000,000

COAL RESOURCES OF SOUTH AND CENTRAL AMERICA.

Columbia	27,000,000,000
Chili	3,048,000,000
Peru	2,039,000,000
Argentine	5,000,000
Venezuela	3,000,000
Honduras	5,000,000
Total	32,102,000,000

COAL RESOURCES OF ASIA.

China	995,587,000,000
Siberia	173,879,000,000
India	79,001,000,000
Indo-China	20,002,000,000
Japan	7,970,000,000
Persia	1,858,000,000
Manchuria	1,208,000,000
Korea	81,000,000
Total	1,279,586,000,000

COAL RESOURCES OF AFRICA.

Transvaal	36,000,000,000
Rest of South Africa	20,200,000,000
Belgian Congo	990,000,000
Rhodesia	569,000,000
Southern Nigeria	80,000,000
Total	57,839,000,000

COAL RESOURCES OF AUSTRALIA AND OCEANIA.

	Tons.
New South Wales	118,439,000,000
Victoria	31,166,000,000
Queensland	15,218,000,000
New Zealand	3,386,000,000
Netherlands India	1,311,000,000
Western Australia	653,000,000
British North Borneo	75,000,000
Tasmania	66,000,000
Philippines	66,000,000
Total	170,380,000,000

In addition to the coalfields enumerated, there is a large one in the Antarctic.

At the present rate of consumption the known coal-supply should suffice for about seven thousand years.

The detailed statistics given show that the United States alone possess more than one-half of the world's coal, that their store is nearly five times as large as that of the whole of Europe, and twenty times as large as that of the United Kingdom. Providence has endowed the Great Republic with a super-abundance of power. The vastness of the coal resources of the United States may be gauged from the fact that the workable coalfields cover 496,776 square miles, an area which is more than four times as large as the whole of the United Kingdom. The State of Pennsylvania alone produces at present more coal than the entire United Kingdom.

Nature has been extraordinarily kind to some nations and exceedingly niggardly to others. The coal resources of some great nations, such as France, Italy, and Japan, are quite insignificant. At their present rate of consumption, the United States would exhaust the coal of all France in about thirty years, and that of all Italy in about five months. France has not only very little coal, but her coal strata are dispersed throughout the country.

In addition the seams run often at steep angles. They are, as a rule, very thin and expensive to work, and they are full of faults and quite erratic. The industrial backwardness of France and Italy is due not so much to lack of enterprise as to lack of coal. The scarcity of coal is at the same time limiting the population of these two countries, for the expansion of population depends on the means of subsistence, and among these coal stands foremost. Coal regulates the life and progress of modern nations. The poverty of Ireland, its dissatisfaction, and industrial backwardness, is largely due not to political reasons, but to lack of coal.

According to the figures supplied above, Germany possessed before the War 55 per cent. of the coal of all Europe, and more than 70 per cent. of the coal of the European Continent. Fully realising that coal and iron are nowadays as important as land was in the agricultural era, that coal and iron can readily be converted into industry, commerce, wealth, population, and military power, Germany has seized the coalfields of Belgium, the richest coalfields of France, which lie near the Belgian frontier, and the great coalfields of Poland and of Western Russia as well, and she intends to retain them if possible. She means to control Nature's power-house and arsenal. She has, in the course of the War, acquired a veritable coal monopoly on the Continent, for the only other Continental State which possesses a large amount of coal is Austria-Hungary, her ally. Germany has claimed Spitzbergen, which hitherto has been considered No-Man's-Land, because it contains almost as much coal as Belgium, and she has been endeavouring to monopolise the mineral resources of Spain, which, in addition to iron and copper, has an important store of coal. Germany controls at present about 75 per cent. of the coal of Europe and about 95 per cent. of the coal of the Continent.

She controls, therefore, the principal source of modern industrial, commercial, financial, and military power.

Before the War Germany had considerably more than twice as much coal as the whole of the United Kingdom. The Rhenish-Westphalian coalfield alone, upon and around which are situated the towns of Düsseldorf, Essen, Duisburg, Dortmund, Elberfeld, Gelsenkirchen, Barmen, Bochum, Mülheim an der Ruhr, Crefeld, Hamborn, Solingen, Remscheid, contains 213,566,000,000 tons of coal, or considerably more than the whole of the United Kingdom. Hence the greatest centre of population in Germany is to be found on and around these coal-pits, which are largely responsible for Germany's marvellous progress in industry, commerce, wealth, population, and military strength.

Coal is of infinite value to the nations, not only because it is convertible into industrial, military, and political power, but also because modern science has succeeded in extracting from it some of the most precious and most necessary commodities, such as gas, tar, pitch, oil, benzol, naphthaline, creosote, ammonia, carbolic acid, toluol, more than a thousand dyes, fertilisers, disinfectants, explosives, and some of the most valuable drugs, such as saccharin, aspirin, phenacetin, antipyrin, and dozens of others.

In former centuries civilisation was based upon wood-fuel and timber. The present age is the age of coal and iron. Modern machinery, modern implements, and modern means of locomotion and transport by land and sea are made of steel. The expansion in the production of iron has been as marvellous and as rapid as that of coal. The best and most modern survey of the iron stores of the world is contained in a large work, *The Iron Resources of the World*, which was placed before the International Geological Congress at Stockholm in 1910. I have extracted from it some of the figures given in these pages. Until recently iron was virtually one of the rare metals Only lately has its use become general. That may be seen from the following figures:

WORLD'S PRODUCTION OF PIG IRON.

	Tons.
In 1800	800,000
In 1850	4,800,000
In 1871	12,900,000
In 1891	26,200,000
In 1910	66,000,000

Iron is no longer smelted with wood. About three tons of coal are required to smelt a ton of iron. The transport of large quantities of minerals is very expensive. Nations rich in coal or in iron, or in both, are reluctant to sell these precious raw materials to their competitors. It follows that only those nations can develop a large iron industry which are rich in coal and iron, or which are fortunate enough to be able to obtain one of these minerals, or both, easily and cheaply from abroad. The principal iron industries of the world are based mainly upon the exploitation of native coal and iron ore. The iron-ore deposits of the world are, according to the Geological Report of 1910, distributed as follows over the five continents:

RESOURCES OF METALLIC IRON CONTAINED IN IRON ORE.

	Actual Reserves. *Tons.*	*Potential Reserves.* *Tons.*
Europe ..	4,733,000,000	12,085,000,000 + Considerable
America ..	5,154,000,000	40,731,000,000 + Enormous
Asia ..	156,000,000	283,000,000 + Enormous
Africa ..	75,000,000	Many thousands + Enormous
Australia ..	74,000,000	37,000,000 + Considerable
	10,192,000,000	53,136,000,000 + Enormous

It will be noticed that for some inscrutable reason Providence has given to America not only the bulk of the world's coal, but also the bulk of the world's iron.

Let us now consider how the different nations share the iron resources of the world.

RESOURCES OF METALLIC IRON CONTAINED IN IRON ORE.

IRON RESOURCES OF EUROPE.

	Actual Reserves. *Tons.*	*Potential Reserves.* *Tons.*
Germany	1,270,000,000	Considerable
France	1,140,000,000	Considerable
Sweden	740,000,000	105,000,000
United Kingdom ..	455,000,000	10,830,000,000
Russia	387,200,000	424,700,000
Spain	349,000,000	Considerable
Norway	124,000,000	525,000,000
Austria	90,400,000	97,000,000
Luxemburg ..	90,000,000	?
Greece	45,000,000	?
Belgium	25,000,000	?
Hungary . . .	13,100,000	34,100,000
Italy ..	3,300,000	1,000,000
Finland	?	16,000,000
Bosnia and Herzegovina	?	11,300,000
Bulgaria	?	700,000
Switzerland	800,000	800,000
Portugal	?	39,000,000
Total .. .	4,732,800,000	12,084,600,000

IRON RESOURCES OF AMERICA.

	Actual Reserves. *Tons.*	*Potential Reserves.* *Tons.*
United States ..	2,304,600,000	37,222,000,000
Newfoundland ..	1,961,000,000	Enormous
West Indies ..	856,800,000	454,000,000
Canada	Considerable	Probably enormous
Mexico	30,000,000	Probably considerable
Columbia, Venezuela, Bolivia, Peru, Chili ..	2,000,000	Considerable
Brazil	?	3,055,000,000
Total ..	5,154,400,000	40,731,000,000 + Enormous

IRON RESOURCES OF ASIA.

	Actual Reserves. Tons.	Potential Reserves. Tons.
British India ..	65,000,000	250,000,000 + Considerable
China	60,000,000	Probably enormous
Japan	28,000,000	Moderate
Korea	2,000,000	Probably moderate
Philippines ..	500,000	?
Asiatic Russia ..	?	14,800,000
Persia	?	18,000,000
Total ..	155,500,000	282,800,000 + Enormous

IRON RESOURCES OF AFRICA.

	Actual Reserves. Tons.	Potential Reserves. Tons.
Algiers and Tunis	75,000,000	?
Rest of Africa ..	?	Enormous
Total ..	73,000,000	Enormous

IRON RESOURCES OF AUSTRALIA AND OCEANIA.

	Actual Reserves. Tons.	Potential Reserves. Tons.
New South Wales	26,800,000	1,700,000
Western Australia	?	15,000,000 + Considerable
South Australia ..	?	12,300,000
Queensland ..	?	7,000,000
Victoria	?	Moderate
Tasmania	15,000,000	1,000,000
New Zealand ..	32,000,000	100,000 + Considerable
Total ..	73,800,000	37,100,000 + Considerable

According to the present state of geological knowledge, Nature has given to the United States not only the world's greatest coalfields, but also the world's greatest iron-mines. While their store of coal is nearly five times as great as that of all Europe, their store of iron is almost exactly three times as great as that of all Europe.

Modern civilisation is based upon the use of coal and iron. Since 1865 the production of iron has grown as follows in the principal countries:

Year.	*United Kingdom.*	*Germany.*	*United States.*	*Austria-Hungary.*
	Tons.	*Tons.*	*Tons.*	*Tons.*
1865 ..	4,896,000	975,000	845,000	292,000
1875 ..	6,432,000	2,029,000	2,056,000	463,000
1885 ..	7,369,000	3,687,000	4,111,000	715,000
1895 ..	7,827,000	5,465,000	9,597,000	1,128,000
1905 ..	9,746,000	10,988,000	23,360,000	1,372,000
1910 ..	10,380,000	14,793,000	27,740,000	2,610,000

Year.	*France.*	*Russia.*	*Belgium.*	*Other Countries.*
	Tons.	*Tons.*	*Tons.*	*Tons.*
1865 ..	1,290,000	299,000	471,000	413,000
1875 ..	1,416,000	427,000	540,000	557,000
1885 ..	1,630,000	538,000	713,000	1,039,000
1895 ..	2,005,000	1,453,000	829,000	1,083,000
1905 ..	3,077,000	2,125,000	1,310,000	2,075,000
1910 ..	4,001,000	3,040,000	1,804,000	2,553,000

TOTAL IRON PRODUCTION.

Year.	*Tons*
1865	9,481,000
1875	13,920,000
1885	19,792,000
1895	29,387,000
1905	54,053,000
1910	66,321,000

Between 1865 and 1910 the production of iron has increased from 9,481,000 tons to 66,321,000 tons, or almost exactly sevenfold. It is significant that the production of iron has expanded at almost the identical ratio as the production of coal. In 1865 the United Kingdom produced 55 per cent. of the world's coal and 52 per cent. of the world's iron. In 1910 it produced only 22 per cent. of the world's coal and only 15½ per cent. of the world's iron. Between 1865 and 1910 iron production has doubled in the United Kingdom, and has grown fifteen-fold in Germany and no less than thirty-threefold in the United States.

Nature has given to the Anglo-Saxon nations and to the German nation a vast preponderance in both coal and iron. Of the 66,321,000 tons of iron produced throughout the world in 1910, 52,913,000 tons, or 80 per cent., were made by the United Kingdom, Germany, and the United States combined. The Anglo-Saxon nations and Germany owe their pre-eminence in industry, commerce, wealth, and power to accident, to the fact that Providence has given them vast stores of coal and iron, which are the twin bases of modern industry, modern wealth, and modern power.

The detailed tables given in these pages show that among the nations of Europe Germany is foremost not only in coal, but also in iron. She possessed before the War 10 per cent. more than France and about three times as much iron as the United Kingdom. She had about 25 per cent. of the iron of all Europe and about 30 per cent. of the iron existing on the European Continent. Italy is as poor in iron ore as she is in coal. Her total supply would be exhausted by the United States in a few months.

The vastness of the French iron deposits was discovered only a few years ago. Hitherto France could smelt only a small portion of her iron ore, as she lacks the necessary coal. Unfortunately for France, not only her greatest coal deposits, but her greatest iron deposits as well lie very near her eastern frontier. Her principal iron-mines are situated about the town of Briey, close to the fortress of Metz. Germany seized during the first weeks of the

War not only France's principal coalfields, but the bulk of France's iron ore as well. Her Lorraine iron-mines contain 91 per cent. of her iron ore. In the districts occupied by the German troops France produced before the War 68·8 per cent. of her coal, 78·3 per cent. of her coke, and 90 per cent. of her iron ore. The seriousness of that blow to her can scarcely be overstated.

Germany has seized the iron ore of Luxemburg and of Belgium. Furthermore, she has seized the iron-ore deposits in Poland and in Western Russia, and she does not intend to abandon any of her precious conquests. Lastly, she has monopolised the iron ore exported from Sweden, and has endeavoured to control the iron-ore trade of Spain. Thus she has obtained approximately as great a monopoly of iron ore on the Continent as she has of coal. It is worth noting that the United Kingdom possesses only one-fourth of Europe's coal, and, as far as her actual reserves are concerned, less than one-tenth of Europe's iron. Germany has seized Europe's power-house and arsenal, and she does not intend to relinquish them unless compelled. At the present moment Germany absolutely dominates Europe with the coal and iron under her possession and control.

Germany's statesmen and Generals have obviously recognised the immense present, and the still greater prospective, value of controlling the bulk of Europe's coal and iron. They have recognised that coal and iron are the sinews of war and of peace. They have recognised that coal and iron are indispensable in modern economic life and modern warfare; that they are the principal sources of wealth, power, and population; that nations which lack coal and iron are bound to remain poor and industrially backward; that the population of the latter is bound to remain stagnant; that they are bound to become tributaries to the nations which possess an abundance of these invaluable and irreplaceable minerals; that nations lacking coal and iron are practically disarmed and must remain militarily helpless.

On May 20, 1915, the six greatest associations of German business men presented to the Imperial Chancellor a petition in which it was stated:

> . . . By acquiring the line of the Meuse and the French coast of the Channel, Germany would obtain not only the ore deposits of Briey, which have already been mentioned, but also the coal districts of the Department du Nord and of the Department Pas de Calais. . . .
>
> Our demands, which at first sight, seem to be dictated by purely economic motives, must be considered from a larger point of view. They spring from the necessity of increasing Germany's national and military power to the utmost. Our demands must therefore be considered from the military point of view. This is particularly the case with regard to the acquisition of agricultural territory, upon which stress has been laid in the present petition, and with regard to the seizure of the ore-bearing territories of the Meurthe and Moselle, and of the French coal districts of the Departments du Nord and Pas de Calais, and the Belgian coal districts. . . .
>
> Acquisitions in the ore and iron districts mentioned are required not only by our economic interests, but also by military necessity. . . .
>
> The possession of vast supplies of coal, and particularly of coal rich in bitumen, such as that which is found in Northern France, is at least as decisive for the issue of the War as is the possession of iron ore. Belgium and Northern France together produce more than 40,000,000 tons of coal per annum. Besides, coal is nowadays one of the determining political factors . . .
>
> It is generally known that our most important explosives are derived from coal, their constituents being obtained during the coking process, and that coal is important also for the production of ammonia. Coal can provide us with benzol, the only product with which we can replace the benzine which we lack. Lastly, coal furnishes us with tar, which can be converted into oil-fuel, which is indispensable for naval purposes, and into lubricants. .

In summing up, we would say that the War aims indicated will secure permanently Germany's national economy, and at the same time guarantee her military strength and her political independence and power. In addition, they will expand Germany's economic opportunities. They will provide work for the workers, and will therefore be of advantage to labour as a whole.

Professor Schumacher, an eminent economist, stated in a lecture delivered on June 20, 1915:

> The whole western frontier of Germany from south to north must be improved as far as circumstances permit. It is no less important to provide for the German War industries upon which successful warfare must be based. . . . Before all we must secure for Germany the possession of the raw materials necessary for our War industries, and at the same time deprive our enemies of the possession of these.
>
> The iron deposits are most important Without the minette ore of Lorraine we cannot maintain our iron and steel production on a scale sufficiently large for the conduct of the War. Happily, we can boast of the possession of the largest iron deposits in Europe These we have obtained in consequence of the victorious war of 1870-1871. The Peace of Frankfort was to give Germany the entire iron-ore deposits of Lorraine. We did not succeed in getting them because the geologists whom Bismarck consulted at the time when the frontier was delimited made a mistake. Since the eighties we know that the larger portion of the ore deposits of the plateau of Briey has been left to France, though Bismarck imagined that the bulk of the iron ore had been obtained by Germany. To-day we can rectify that serious error because, happily, Germany seized the French ore district at the beginning of the War, and is holding it firmly in her grasp.
>
> Second in importance for Germany's War industries is coal, especially that kind of coal which can readily be converted into coke and which yields the principal explosives. We could not continue the War successfully if we did not obtain the necessary supply of iron ore from the soil of Lorraine, and we could also not hope to succeed had not Nature endowed Germany, and particularly the

Rhenish Province and Westphalia, and the neighbouring districts of Belgium and of Northern France, with excellent coking coal. Similar quantities of that precious raw material do not occur elsewhere in Europe, and their quality is of the best. Now, when we have learned how important the question of munitions is for the issue of the War, and when we are already compelled to employ Belgian coal for Germany's own requirements, we must declare that the vital needs of the German nation in war and in peace make it impossible to render up once more to the enemy these mainsprings of military and economic power.

In Germany science and industry, commerce and the army have worked hand in hand. The German statesmen, the German Generals, and the German people have become convinced that in the modern world not cotton but coal is king, and that coal shares his rule with iron; that the nation which dominates the coal and iron resources of Europe dominates Europe itself industrially, commercially, financially, and militarily. The German conception is no doubt correct, and it is worth bearing in mind that at present, and for decades to come, the domination of Europe is equivalent to the domination of the world. Germany, if victorious, may dominate the world, not so much owing to her vast territorial acquisitions in the East and the West as owing to her acquisition of a monopoly of coal and iron on the Continent of Europe. The coal and iron problem is very likely far more important than most political problems, such as the fate of Constantinople and the problem of nationalities. Unfortunately, most statesmen and diplomats live in the past. They talk of territories and strategical points and harbours and racial questions as if we were still living in the eighteenth century. Unfortunately, most statesmen and diplomats, and most publicists as well, have not yet recognised that he who dominates the coal and iron industries dominates the world.

CHAPTER III

BRITAIN'S TRUE WEALTH AND THE RELATIVE UNIMPORTANCE OF THE WAR DEBT*

ACCORDING to Mr Bonar Law's Budget forecast, the British National Debt will amount to £7,980,000,000 at the end of the financial year, on March 31, 1919. The British War expenditure has constantly been rising. It amounts at present to approximately £2,000,000,000 per year, and may continue increasing In order to finance the War a large portion of Britain's foreign investments had to be sold and vast sums of money had to be borrowed from the United States. The struggle may last another year or longer. The after-War settlement is bound to be exceedingly costly. Ultimately the British War debt may approximate, or may even exceed, what is generally called the national wealth Before the war it was estimated that Britain's national wealth came to about £15,000,000,000. Not unnaturally many are alarmed at the gigantic and rapidly growing amount of the British indebtedness. Some pessimists believe that in the end England will be utterly ruined, that Britain must make peace promptly to avoid national bankruptcy and financial annihilation, that in any case Great Britain will be greatly impoverished, and that she will become financially a tributary to the United States. It has been asserted that Lord Lansdowne's unfortunate letter was inspired by these considerations. In the following pages an attempt will be made to survey the position in all its bearings.

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* From *The Nineteenth Century and After*, May, 1918.

Those who tell us that Great Britain's national wealth amounts to £15,000,000,000, that before long the National Debt will be greater than the entire wealth of the country, suffer from a confusion of thought. They confuse national wealth and individual wealth, which is a totally different thing. Man's span of life is short. A nation's life is long and it may last for ever. One cannot, therefore, ascertain the true wealth of a nation by adding up the property of all the short-lived citizens of the present. The wealth of a nation is not fixed. It is not stationary. On the contrary, it is subject to growth and decline as is the nation itself. It is therefore susceptible of indefinite expansion or to equally indefinite contraction Whether the wealth of a nation will expand or contract depends on its fortunes and on its policy.

Before considering the problem of the British National Debt, I would say that men are apt to confuse real wealth and paper wealth. The former is obviously far more important than the latter. Moreover, in discussing the influence of the National Debt upon the wealth of a nation, we must carefully discriminate between debt held at home and debt held abroad. Happily, Britain's foreign indebtedness is relatively small. The bulk of the British War Debt is held in the country. The British paper debt is therefore balanced by an almost equally great British paper wealth. The fact that a great domestic debt does not impoverish a nation can easily be proved. If we assume the impossible, if we assume that the whole British debt should be repudiated, the loss to the owners of the debt would be almost exactly balanced by the gain to the nation as a whole. A number of capitalists would be ruined, but the real wealth of the country, which consists in the great wealth-creating resources, such as fields, factories, mines, etc., would be as great as ever. During the Revolution France repeatedly repudiated her national debt. Yet at the end of the revolutionary period the country was considerably richer than at its beginning.

A large national debt may inconvenience, but cannot impoverish, a nation as long as the nation preserves its great wealth-creating resources, and as long as the bulk of the debt is held at home. An unduly large foreign debt would require gigantic yearly payments for interest, and these payments would be made nominally in gold. In reality they would be affected by large yearly exports of goods which would not be balanced by correspondingly large imports. It follows that a large foreign debt would impoverish Great Britain to some extent. The foreign bondholders would be in the position of great absentee landlords. They would drain the country of a large portion of its real wealth.

Financiers and bankers who spend their lives in handling paper securities are apt to attach undue importance to paper wealth. To them paper is often equivalent to wealth. However, no nation known to history has ever been crushed by its domestic paper debt, but many nations have been ruined by the destruction of their real wealth, by the loss of their great wealth-creating resources. These may be lost almost as easily in peace as in war. Germany was ruined by the Thirty Years' War because it destroyed half the population and the bulk of the livestock, machinery, and tools, because it emptied the towns and converted the agricultural districts into a wilderness. The vast wealth of the Arab Empire on the Euphrates was destroyed when the conquering Turks destroyed the canals and irrigation works of Mesopotamia, upon the existence of which the agriculture of the country depended or its prosperity. The wealth of Venice was destroyed in peace when the Portuguese discovered the sea route to India around the Cape of Good Hope, when the trade between the East and the West, which was the greatest wealth-creating resource of Venice, ceased to flow through the Mediterranean. The population and wealth of France became relatively stagnant in peace when, in the age of coal, France discovered that she possessed only an inadequate supply of that indispensable mineral.

Great Britain cannot be ruined by her paper debt, however large it may ultimately be, but she may be ruined by the loss of her wealth-creating resources.

Money, even gold, is, after all, merely a simulacrum of wealth, for real riches consist not in counters made of paper or metal, which have only a conventional value, but in useful and necessary things. The Germans are aware that the wealth of nations consists, not in money, but in real values; that real wealth is derived from the great natural resources, such as fruitful territories, useful minerals, and men. They have therefore striven to seize the great wealth-creating resources of their opponents. They have occupied, and they mean to retain, the vast coal and iron fields of Belgium, France, and Russia, and the oilfields of Rumania, the value of which is absolutely incalculable. If Great Britain should be victorious, she will retain her great wealth-creating resources, the exploitation of which has only begun. These resources will in course of time yield undreamt-of wealth, which will easily pay for the cost of the War. If, on the other hand, she should be defeated and compelled to sue for peace, the Germans would presumably treat her as they have treated Russia. They would very likely break up the United Kingdom and the British Empire. They would most probably occupy Ireland, and would occupy and exploit the British coalfields, the mineral contents of which, at the rate of 10s. per ton, are worth about

£100,000,000,000, or six times as much as the so-called national wealth of the country. Thus they would at the same time vastly enrich themselves and ruin Great Britain for all time.

If the War should end in Britain's victory, the cost of the struggle, however great, will appear small to future generations, for the wealth of nations tends to increase at an ever-growing rate. That seems to be an economic law.

During historical times the wealth of nations has vastly increased, and there is no reason for believing that this continuous expansion of national wealth will come to a standstill The universal and rapid increase of the wealth of nations is due to two factors: to the vast and continuous increase of the population and the constantly growing productive power of men on the one hand, and to the rapid and continuous depreciation of money on the other hand. Both factors will probably continue to be operative to the end of civilisation.

The depreciation of money alone should automatically reduce the gigantic British War Debt to one-half, and perhaps to one-quarter, of its nominal amount within a few decades. This assertion seems so extraordinary that it requires some explanation.

For many centuries the value of money has been shrinking. From Professor Thorold Rogers' excellent *History of Agriculture and Prices in England* we learn that in the thirteenth century an ox was worth about 10s., a sheep 1s. 6d., a quarter of wheat cost about 5s., while a labourer received a wage of 2d. or 3d. per day. Since then prices have continually risen. About the year 1500 an ox cost 22s. 6d., a sheep 2s. 4d., a quarter of wheat 5s. 6d., and a labourer was given a wage of 5d. or 6d. per day. In the year 1500 old people were no doubt very indignant at the colossal rise in prices. Very likely they complained then about profiteering and about the extortionate demands of the workers, exactly as people do nowadays. In the Middle Ages powerful Sovereigns raised with difficulty on the security of their Crown jewels or of a province a loan of a few thousand pounds, for that was at the time a gigantic sum. From the early Middle Ages to the present day money has continued depreciating. An American mechanic now earns a sum that was formerly considered to be a King's ransom. The depreciation of money has not yet come to an end.

Economists frequently state that the great and continuous depreciation of money has been caused by the great and constantly increasing production of gold and silver. That is, in my opinion, merely one of the causes, but not the principal one, of that phenomenon I believe the chief reason of the universal depreciation of the currency is to be found in the universal desire of men to increase their profits and their wages. The profiteers in the counting-house and at the bench may prove public benefactors against their will. By constantly increasing their monetary demands, by insisting on doubled and quadrupled profits and wages, they may, and probably will, depreciate very greatly the present value of money, and they may thus reduce the War Debt to one-half or one-quarter. It will be quite manageable when unskilled labourers receive a wage of 10s. or £1 a day.

The wealth of advancing nations is not stationary, but is susceptible to indefinite expansion. From time to time eminent economists and statisticians have calculated the wealth of their countries. However, what they have called "national wealth" was not the wealth of the nation, which, rightly considered, is unmeasureable, but was merely the joint wealth of the individuals of their generation. Mulhall's *Dictionary of Statistics* contains the following estimates regarding the "national wealth" of the United Kingdom:

BRITAIN'S NATIONAL WEALTH.

	£
In 1660 England and Wales, according to Petty ..	250,000,000
In 1703 ,, ,, ,, ,, ,, Davenant	490,000,000
In 1774 ,, ,, ,, ,, ,, Young	1,100,000,000
In 1800 Great Britain, according to Beeke and Eden	1,740,000,000
In 1812 United Kingdom ,, ,, Colquhoun ..	2,190,000,000
In 1822 ,, ,, ,, ,, Lord Liverpool	2,600,000,000
In 1833 ,, ,, ,, ,, Pablo Pebrer	3,750,000,000
In 1840 ,, ,, ,, ,, Porter	4,100,000,000
In 1865 ,, ,, ,, ,, Giffen	6,113,000,000
In 1875 ,, ,, ,, ,, Giffen .. .	8,548,000,000
In 1885 ,, ,, ,, ,, Giffen .. .	10,037,000,000
In 1903 ,, ,, ,, ,, Giffen .. .	15,000,000,000
In 1903 British Empire ,, ,, Giffen	22,250,000,000

In 1660 England's national wealth was exceedingly small. It was inferior to the deposits in one of the leading London Banks of the present. It was smaller than Mr. Rockefeller's wealth. Between 1660 and 1903 the wealth of the United Kingdom increased sixtyfold. Between 1800 and 1903 it grew eightfold.

Mulhall gives the following estimates regarding the national wealth of France:

FRANCE'S NATIONAL WEALTH.

	£
In 1789, according to Lavoisier	1,520,000,000
In 1815 ,, ,, Chaptal	1,800,000,000
In 1853 ,, ,, Girardin	5,000,000,000
In 1871 ,, ,, Wolowski	7,000,000,000
In 1879 ,, ,, Leroy Beaulieu .. .	7,520,000,000
In 1885 ,, ,, Guyot	8,560,000,000

Between 1815 and 1885 the wealth of the French citizens increased almost fivefold.

The increase of the wealth of England and France shown in these tables is partly real and partly fictitious.

It is due in part to the increase of population and of national production, and in part to the depreciation of the currency. During the last century the purchasing power of the sovereign has declined to about one-half. A pound is now worth only as much as ten shillings were in 1815. The war debt of £840,850,491 which existed at the end of the Napoleonic War was therefore reduced to £420,425,245 by the shrinkage of the purchasing power of the currency. The war debt of 1815 appears small to the present generation. Similarly, the War Debt of 1918 may appear small to future generations.

The increase in the accumulated wealth of the citizens is naturally accompanied by a similar increase in their income. This increase also is partly real and partly fictitious. The following estimates show its progress during recent years:

INCOME OF THE UNITED KINGDOM.

		£
In 1884,	according to Sir Louis Mallet	1,289,000,000
In 1883	,, ,, Prof. Leone Levi	1,274,000,000
In 1885	,, ,, Prof. Arthur Marshall ..	1,125,000,000
In 1904	,, ,, Chiozza Money	1,710,000,000
In 1904	,, ,, A. L. Bowley	1,800,000,000
In 1907	,, ,, *Census of Production* ..	2,000,000,000

In 1913-1914 the income of the British people came probably to £2,500,000,000. It has doubled in thirty years.

For the purpose of this chapter it is idle to inquire how far the increase in the wealth and income of the British nation is due to increased population and to increased production, and how far it is due to the declining value of the currency. The chief point is to establish that wealth and income, as measured in money, have a tendency to increase continually and very rapidly. The new War Debt is a money debt. It has to be settled by money payments. It will be paid off in the same way in which the British war debts have been paid off in the past, and the repayment will be greatly facilitated by the progressive increase of wealth and income, and by the equally progressive depreciation of the currency which should take place in the future and with which we may calculate.

The vastly increased ability of the British people to pay increased taxes may be seen from the following most remarkable and most noteworthy figures

		£
British Tax Revenue in 1815	..	72,210,512
,, ,, ,, ,, 1917-1918	..	707.234.565

In 1792, when the great war with France began, the British Tax Revenue amounted to £19.258.814. It was more than trebled in the course of the struggle. It reached its maximum in 1815. The raising of £72,210,512 seemed to the British tax-payers of the time the maximum effort possible. In 1917-1918 the United Kingdom raised by means of taxes practically ten times as much as it had raised in 1815. During a century Britain's financial strength has grown tenfold, partly through increased production and partly through the depreciation of the currency. It is quite conceivable that during the next hundred years the real and fictitious wealth of Great Britain may expand as fast as it has done during the preceding century. If that should be the case, the United Kingdom may in the year 2017 have a national wealth of £150,000,000,000, a yearly income of £25,000,000,000, and may be able, in case of need, to provide in a single year a revenue of £7,000,000,000. The cost of the War, however great, may appear as trifling to the grandchildren and great-grandchildren of the present generation as the cost of the Napoleonic War, which appalled the generation of Waterloo, appears to us now.

The fact that Great Britain's income and wealth can very rapidly and very greatly be increased scarcely needs proving. In a manufacturing country the progress of wealth and of income depends upon production. I have shown in a recently published book,* by means of the most reliable official figures available, that the American workers employed in the manufacturing industries produced per head before the War about three times as much as their British colleagues engaged in the identical callings, largely because they employed per thousand men three times as much engine-power. American labour engaged in mining, in agriculture, and in transport also is approximately three times as efficient as is British labour. It follows that the United Kingdom can treble its wealth and income by Americanising its industries, that it thereby can increase its wealth from £15,000,000,000 to £45,000,000,000, and its yearly income from £2,500,000,000 to £7,500,000,000. The process of Americanising the British industries has already begun, as I have pointed out in another chapter of the book mentioned. The country is therefore at present considerably richer than it was before the War, and herein lies the reason that the taxpayers have been able to provide easily the gigantic sums needed for financing the War.

Those who pessimistically compare Britain's War Debt with its so-called national wealth of £15,000,000,000 should remember that a country's wealth is not fixed for all time, but is susceptible of indefinite expansion, and they should endeavour to gauge the value of some of the country's latent resources. The United Kingdom possesses, for instance, as we have seen, approximately 200,000,000,000 tons of coal, which alone are worth £100,000,000,000 at the pit's mouth. In reality the coal of the nation is worth far more than £100,000,000,000. With ten shillings' worth of coal may be produced several pounds' worth of cotton goods or of dyes or of chemicals. Earths which are worthless in themselves may be converted into aluminium, buildings, ships, or the most precious porcelains. We have only begun to exploit the riches of the world. We may soon succeed in harnessing the tides. The economic possibilities of the future are unlimited.

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* "The Great Problems of British Statesmanship." John Murray, London, 1917.

The development of a nation's wealth depends upon the exploitation of the forces of Nature by man. Two acres should produce more wheat than a single one. Two men should produce more value than a single man. A man employing powerful machinery may produce as much wealth as a hundred men who work with their hands. The development of national wealth depends mainly on four factors: on the extent of the national territory, on the natural resources, on the number of the inhabitants, and on the efficiency of citizens. The limited area of the United Kingdom contains only a limited quantity of natural riches. Therefore it can nourish only a limited number of people and produce only a limited amount of wealth. The expansion of Britain's wealth and population is circumscribed by the narrowness of the national territory. The outlying portions of the Empire are more than a hundred times as large as the British Isles. They contain vast resources of every kind which await man's exploitation. The Continent of Australia contains fewer people than London. Canada, Australia, and South Africa will gradually fill up. The population and the wealth of the Dominions and Colonies should grow much faster than the population and wealth of the Motherland. Before very long the daughter-States should exceed the Motherland both in white population and in wealth. They will therefore be better able to assume a large portion of the War Debt than they are at present, and they will undoubtedly be found ready to shoulder their share of the burden, for the War has been fought not only for Great Britain, but for the British Empire and the British race. Let us therefore endeavour to cast a glance into the Empire's future.

As the statistics relating to the Empire are rather fragmentary, and as comprehensive British Imperial statistics scarcely exist, I would illustrate the probable, or at least the possible, development of the British Empire in power and wealth by means of the excellent statistics relating to the United States. The United States have furnished a brilliant example of successful development to the British daughter-States, and they have provided us with the necessary exact statistical information. They were the first great country which published exhaustive censuses of population, of wealth, etc. The first American census of population was taken in 1790. Data for the preceding decades have been given by the American Census Bureau in a special Report entitled *A Century of Population Growth*, published in 1909. We learn from these official sources that the population of the United States has increased as follows:

Population of the United States.

1610	210	1770	2,205,000
1620	2,499	1780	2,781,000
1630	5,700	1790	3,929,625
1640	27,947	1800	5,308,483
1650	51,700	1810	7,238,881
1660	84,800	1820	9,638,453
1670	114,500	1830	12,866,020
1680	155,600	1840	17,069,453
1690	213,500	1850	23,191,876
1700	275,000	1860	31,443,321
1710	357,500	1870	38,558,371
1720	474,388	1880	50,155,783
1730	654,950	1890	62,947,714
1740	889,000	1900	75,994,575
1750	1,207,000	1910	92,174,515
1760	1,610,000	1912	95,410,503

The growth of the population of the United States has been most remarkable, but the growth of the wealth of the people has been even more wonderful. In 1790 the slender wealth of the United States was, according to the Government Report mentioned, composed as follows:

	Dols.
Land and buildings	347,767,000
Slaves	104,643,600
Live stock and all other property ..	100,000,000
Total	552,410,600

In 1790 Great Britain was about fifteen times as rich as were the United States. Now the United States are more than twice as rich as is the United Kingdom. Since 1790 the wealth of the United States has increased at a prodigious rate. It has increased much faster than the population. Detailed American censuses relating to the wealth of the inhabitants have been published since 1850. The following table shows that the wealth of the American people has increased infinitely faster than has their number:

Year.	*Inhabitants.*	*Wealth.*	*Wealth per Head.*
		Dols	*Dols.*
1790 ..	3,929,625	552,410,600	140.57
1850 ..	23,191,876	7,135,780,000	307.69
1860 .	31,443,321	16,159,616,000	513.03
1870 . .	38,558,371	30,068,518,000	779.83
1880 .	50,155,783	43,642,000,000	870.20
1890	62,947,714	65,037,091,000	1,035.57
1900 .	75,994,575	88,517,307,000	1,164.79
1904	82,466,551	107,104,212,000	1,318.11
1912 . .	95,410,503	187,739,071,090	1,965.00

Between 1790 and 1912 the population of the United States has grown twenty-fourfold and their wealth three hundred and fortyfold. Hence the wealth per head of population has increased fourteenfold. As in the meantime the value of the dollar has decreased to one-half, the real wealth per head has increased approximately sevenfold. Between 1850 and 1912 the population of the United States has increased fourfold and their wealth no less than twenty-sixfold, while the wealth per head of population has increased six and a half-fold.

The wealth of the United States is very unequally distributed by States, and has expanded in a very unequal manner. It is highly significant that the richest American States are those of the North, which, comparatively, have a poor soil and a rigorous climate, but which are rich in coal and iron and are geographically most favourably situated for the successful pursuit of manufacturing and commerce The States of New York, Pennsylvania, and Illinois, which together have less than one-thirtieth of the national territory, possess almost exactly one third of the national wealth, because in these States the use of labour-saving machinery has been brought to the very highest perfection. On the other hand, the cotton, sugar, and tobacco producing semi-tropical States of the South, which have the richest soil and the gentlest climate, but in which labour-saving machinery is comparatively little employed and the manufacturing industries are little developed, are among the poorest States of the Union, and their wealth is growing comparatively slowly. Between 1850 and 1912 the wealth of New York State has grown twenty-fivefold, that of Pennsylvania twenty-twofold, and that of Illinois one hundredfold. On the other hand, the wealth of Louisiana, Alabama, and Tennessee has grown only ninefold, and that of Virginia only sixfold. In the past, before the age of coal and iron, Virginia was the most populous and the wealthiest State of the Union. It occupied a position of pre-eminence similar to that which is now held by New York.

Vast, thinly settled, and apparently worthless territories may become exceedingly wealthy and populous by the advance of civilisation. This fact is well illustrated by the history of the United States and of Canada. In 1763, when France lost Canada to Great Britain, the country had only 65,000 white inhabitants, and Voltaire jestingly expressed his surprise that two great nations should fight one another "pour quelques arpents de neige." Voltaire could, of course, not foresee that steam and steel would abolish distance, that Canada would become a great nation which in a couple of centuries might exceed France in population and wealth. Canada contains seventy times as much coal as France, and considerably more coal than all Europe. That resource alone ensures the future greatness and prosperity of the country.

The purchase of Louisiana by the United States is one of the greatest romances of history. In 1803 Napoleon urgently required funds for carrying on the government, and he was reluctant to increase existing taxation. At that time the great colony of Louisiana belonged to France. The town of New Orleans, on the Mississippi River, formed part of that colony. It was the great port of the Mississippi Valley. As the American trade which flowed up and down the Mississippi was being impeded and obstructed at New Orleans, the United States wished to purchase that town from France. Mr. James Monroe, who later on became President and promulgated the celebrated doctrine which bears his name, was sent to France, and was authorised to buy New Orleans for $2,000,000, acting in conjunction with the American Ambassador, Mr. Livingston. In 1803 Louisiana was inhabited by about 100,000 people, of whom only 50,100 were whites, the rest were negroes and half-castes. The actual and prospective value of the colony was considered by many to be insignificant. Its chief value was supposed to consist in the harbour and town of New Orleans.

When Napoleon was offered $2,000,000 for New Orleans he refused, but he declared to Marbois, his Minister of Finance, that he would sell to the United States the whole of Louisiana for 100,000,000 francs or £4,000,000. That seemed a colossal sum for an uninhabited waste. Marbois discussed Napoleon's offer in a friendly manner with Mr. Livingston, the American Ambassador. The latter reported to his Government the gist of the conversation in a despatch, dated April 13, 1803, which may be found in the collected American State Papers. Livingston wrote:

> Seeing by my looks that I was surprised at so extravagant a demand, he (Marbois) added that he considered the demand as exorbitant, and had told Napoleon that the thing was impossible. . . . I (Livingston) told him that we had no sort of authority to go to a sum that bore any proportion to what he mentioned; but that, as he himself considered the demand as too high, he would oblige me by telling me what he thought would be reasonable. Marbois replied that, if we would name 60,000,000 francs and take upon us the American claims to the amount of 20,000,000 francs more, he would try how far this would be accepted.

On April 30 Monroe and Livingston signed, on their own responsibility, a treaty whereby France ceded to the United States Louisiana against the payment of 60,000,000 francs. The two American representatives reported their unauthorised action to the Secretary of State, Mr. Madison, in a letter dated May 13, in which they tried to justify their action. They stated:

> Sir,—We have the pleasure to transmit to you by M. Derieux a treaty which we have concluded with the French Republic for the purchase and cession of Louisiana. . . . An acquisition of so great an extent

was, we well know, not contemplated by our appointment; but we are persuaded that the circumstances and considerations which induced us to make it will justify us in the measure to our Government and country. . . . The terms on which we have made this acquisition, when compared with the objects obtained by it, will, we flatter ourselves, be deemed advantageous to our country. We have stipulated, as you will see by the treaty and conventions, that the United States shall pay to the French Government sixty millions of francs in stock bearing an interest of six per cent.; and a sum not exceeding twenty millions more to our citizens, in discharge of the debts due to them by France, under the Convention of 1800. . . .

In estimating the real value of this country to the United States a variety of considerations occur, all of which merit due attention. Of these, we have already noticed many of a general nature, to which, however, it may be difficult to fix a precise value. Others present themselves of a nature more definite, to which it will be more practicable to fix some standard. By possessing both banks (of the Mississippi), the whole revenue or duty on imports will accrue to the United States, which must be considerable. The value of the exports, we have understood, was last year four millions of dollars. If a portion only of the imports pass through that channel, as, under our government, we presume they will, the amount of the revenue will be considerable. This will annually increase in proportion as the population and productions in that quarter do. The value of the lands in the province of Louisiana, amounting to some hundred millions of acres, of the best quality, and in the best climate, is, perhaps, incalculable. From either of these sources it is not doubted that the sum stipulated may be raised in time to discharge the debt. . . .

Permit us to express an earnest wish that the President and Senate may decide with the least possible delay on the treaty and conventions which we have concluded, and have the pleasure to transmit you. . . .

The unauthorised conclusion of the Louisiana Purchase Treaty was severely criticised in the United States. In discussing whether it should be ratified or not, some

Senators pointed out that it was unconstitutional. Senator Plumer of New Hampshire considered that the acquisition of Louisiana would be ruinous to the Union, and especially to New England. Senator White of Delaware thought the acquisition would prove a curse to the country, and that the money spent on its purchase was exorbitant. He stated:

> If Louisiana should ever be incorporated into the Union, I believe it will be the greatest curse that could at present befall us. It may be productive of innumerable evils. . . . Our citizens will be removed to the immense distance of two or three thousand miles from the capital of the Union, where they will scarcely ever feel the ways of the general government; their affections will become alienated; they will gradually begin to view us as strangers; they will form other commercial connections, and our interests will become distinct . . . and I do say that under existing circumstances, even supposing that this extent of territory was a desirable acquisition, fifteen millions of dollars was a most enormous sum to give.

Louisiana contained not merely "several hundred millions of acres of land of the best quality," as Messrs. Livingston and Monroe had reported, but comprised 875,025 square miles, a territory more than seven times as large as the United Kingdom and considerably larger than that of the original thirteen colonies. By the payment of a paltry 15,000,000 dollars the United States more than doubled their territory. Old Louisiana consisted of the lands on the west bank of the Mississippi, from the Mexican to the Canadian border, and it included the whole of the Missouri River system. Out of the gigantic territory purchased were carved the States of Arkansas, Colorado, Iowa, Kansas, Louisiana, Minnesota, Missouri, Montana, Nebraska, North Dakota, South Dakota, Oklahoma, Wyoming, and the Indian Territory.

According to the United States Government Report, *Territorial and Commercial Expansion of the United States*, published in 1904, the Louisiana territory produced, in 1903, 60 per cent of the wheat raised in the United States, over 43 per cent. of the maize, 42 per cent. of the oats, 30 per cent. of the wool, 30,000,000 tons of coal, 16,000,000 tons of iron ore, $77,500,000 worth of gold and silver, etc. The latent wealth of the country is boundless.

The lands of the Louisiana purchase possess the finest agricultural lands of the United States, and their subsoil is exceedingly rich in minerals of all kinds. The uplands abound in timber. As the Louisiana territory is inhabited by one-fifth of the American population, it is fair to assume that it contains approximately one-fifth of the wealth of the country. At present the wealth of Louisiana should therefore be about £7,500,000,000, and before long it should greatly exceed the wealth of France. In a little more than a century a vast wilderness has been peopled by millions of families, and the capital hesitatingly invested in the purchase price in 1803, which seemed enormous at the time, has been increased more than 3,000-fold, to the vast benefit of the American people. Their foresight and enterprise have been amply rewarded. The story of the Louisiana purchase shows the superior value of real wealth, of natural resources, and especially of land, to money. That fact is keenly appreciated by the British landed aristocracy. It has created its wealth.

It is frequently asserted that America's wonderful progress in population and in wealth is due to the magnificent natural resources of the country. The United States have undoubtedly been singularly favoured by Nature's bounty. Apparently they possess within their frontiers the bulk of the world's coal and iron, as I have endeavoured to point out in the preceding chapter of this book. However, natural resources, even if they are exceedingly great, cannot be converted into wealth unless they are vigorously exploited by man. Possibly, one ought perhaps to say probably, the British Empire, which has an area four times as large as the United States, and which extends through all climes, possesses far greater natural resources than the United States. Unfortunately, the natural resources of the Empire have not been sufficiently developed by man. Their exploitation has been left to chance, to unrestricted private enterprise, and the worst is that no Imperial stock-taking has ever taken place Therefore we do not even know what resources the British Empire possesses. It is quite possible that its wealth in coal and iron alone is far greater than that of the United States

The wonderful growth of the United States in population and wealth is largely due to the energy of the American people and to the solid common-sense and enterprise of their rulers. The American Governments have surveyed, mapped, and classified with the greatest care the natural resources of the country. Their geological surveys, agricultural surveys, water-power surveys, forest surveys, fishery surveys, etc., might, and should, serve as models to the British peoples. In matters economic the Americans have not followed the British policy of drift and neglect, called *laissez faire*, but a far-sighted policy of wise and energetic action.

British economic policy has been powerfully influenced by the teachings of British political economy, which stands by itself. Unfortunately, British political economy is not national. It is unnational, cosmopolitan. Adam Smith, the father of modern British political economy, called his celebrated treatise, *An Inquiry into the Nature and Causes of the Wealth of Nations*, although he almost disregarded the existence of nations. His is not a national, but an individualist, economy. He ought to have called his book, *An Inquiry into the Nature and*

Causes of the Wealth of Individuals. Adam Smith's successors disregarded the existence of States altogether. They spun their unprofitable theories around an abstract "economic man" whose only aim was the pursuit of profit, and who lived in an abstract world-wide commonwealth without national frontiers. However, whereas Adam Smith had at least tried to describe and develop an economy of production and had dwelt on the paramount importance of production, his successors created an economic science which was designed chiefly for the benefit of non-producers, of capitalists, middlemen, and speculators. Modern British political economy not only disregards the existence of nations, but it takes little heed of the interests of the producers. It devotes its attention principally to promoting the interests of capitalists, traders, and other non-producers. The great Ricardo was a stockbroker and a successful speculator Cobden was an unsuccessful speculator who had twice to be saved from bankruptcy. These two men are the fathers of modern British political economy. Bliss's *Encyclopedia of Social Reform*, an American publication, stated correctly:

> Value being taken as the ear-mark of wealth, the Ricardian economics become a theory of acquisition, attention being given to the money-making propensities rather than to productive activity. . . . Archbishop Whately designated the essential interest of the utilitarian economics when he proposed the name "Catallactics"—the science of exchange.

The teachings of the British economists have profoundly affected British policy. For the benefit of the capitalist, the middleman and the speculator, the State was to remain absolutely passive in economic matters. The non-producers were given a free hand. In the sacred name of "economic liberty" they were allowed to exploit and to destroy the productive industries and the strength of the country. The destruction of the country's political and economic strength and the spoliation and waste of its great natural resources did not matter so long as non-producing capitalists and middlemen flourished. Production was sacrificed to speculation. The unrestricted enterprise of company promoters, usurers, and swindlers of every kind was considered more important than the welfare of the producers who create the national wealth. National strength and security were sacrificed to the unrestricted greed of speculators. The Stock Exchange was considered more important than the great industries. Paper wealth was placed above real wealth. The development of the great Imperial domain was left to chance and to the tender mercies of cosmopolitan financiers, who, under the pretext of developing the Empire, tried to fleece the British investors. No attempt was made by the Government to direct the huge stream of British emigrants towards the empty lands of the Empire, for money was considered more important than men.

While British Governments, following a speculators' policy, neglected the development of the Empire, and disregarded the possibility of increasing its wealth and strength by directing towards the Colonies European emigrants, or at least British emigrants, successive American Governments fostered immigration and production by all means in their power. Between 1820 and 1910 the United States received the immense host of 32,200,594 immigrants. At the census of 1910 the Great Republic contained 13,515,886 people of foreign birth and 32,243,382 people of purely foreign blood. They contained 2 557,080 people born in the United Kingdom and 980,938 born in Canada. In 1910 the British-born population in the United States was almost as large as that of Australia, while the American population of purely British blood—that is, the British immigrants and their American-born children--numbered 10,490,027, a population as great as that of Scotland, Ireland, and Wales combined. The Report of the American National *Conservation Commission estimated the value of an immigrant at $1,700 or £340. That is probably a great understatement.* At that figure the British-born population in the United States would represent a value of more than £1,000,000,000, and the population of purely British blood a value of more than £3,500,000,000. That is a gigantic free gift which might with advantage have been handed over to the British Dominions. It would have vastly increased the strength and wealth of the Empire.

Wealth is created by the exploitation of the resources of Nature by man. While the American people have pursued the policy of increasing their wealth and strength by increasing their population and by fostering national production in all its branches, the British people have unfortunately pursued the policy of encouraging speculation in all its forms and of restricting both population and production. The British manufacturers and their workers, acting like greedy middlemen and scheming speculators, have consistently followed the disastrous policy of creating an artificial scarcity, of restricting output to the utmost, in the hope of obtaining illegitimate profits, and, guided by the views of a well-meaning but fantastic clergyman, who dabbled in political economy, British statesman, politicians, labour leaders, and philanthropists, have striven to create an artificial scarcity of men as well. Cranks and schemers directed the policy of the country. The loss of population by emigration to the United States was greeted as a relief and as a blessing. Men preached that the easiest way to make a nation prosperous consisted in committing national suicide and economic suicide, consisted in restricting the birth-rate and restricting national production. The United States have gone far ahead of the British Empire in white population and in wealth, although England had an enormous start, *and although the latent resources of the Empire are probably infinitely greater than those of the* United States, because British statesmen, British business men, and the British workers have consistently followed the suicidal policy of impeding the increase of the national wealth and of the national strength, of impeding the increase of the population and the increase of national production, have followed an un-national and even an anti-national policy.

Wealth, I repeat, is created by the exploitation of the resources of Nature by man. In economic and military contests success is won by superiority in man-power, by superiority in equipment, and, last but not least, by superiority in leadership. The United States owe the vast increase of their wealth to the rapid increase of their population and to the fact that the American people, guided by men of common sense, have increased the productive power of their citizens to the utmost by the most lavish use of labour-saving machinery of every kind.

The United States owe their rapid progress in wealth and power in the first place to the wonderful development of their railway system, whereby the Great Republic has been opened up in all directions. The American railway system has grown as follows:

UNITED STATES RAILWAY MILEAGE.

Year.	*Miles.*
1850	9,021
1860	30,626
1870	52,922
1880	93,267
1890	167,191
1900	198,964
1910	249,992

The United States have the most wonderful system of railways. Their mileage is far greater than that of all Europe, which in 1910 had only 207,432 miles of railway. All Europe, with 458,795,000 inhabitants, has actually fewer miles of railway than have the United States. The Great Republic possesses 40 per cent. of the railway mileage of the world. It is a humiliating fact that the length of its railways is considerably greater than that of the British Empire, the area of which is four times as great as that of the United States.

The United States have not only the greatest railway system in the world, but the American railways are the most efficient railways existing They pay the highest wages in the world. Yet their freight charges are among the lowest in the world. Free competition, coupled with adequate official supervision and guidance, has given to the United States an excellent railway system, a uniformity of outfit and facilities for handling traffic at the cheapest freight rates. Unrestricted private enterprise, the unrestricted control of railways by greedy speculators, has given to Great Britain the most costly and perhaps the least efficient railway system in the world, with monstrously high freights. The British railways have been run, not for the benefit of the country, but for that of company promoters, railway directors, stock-speculators, and shareholders, while national production has been hampered and restricted by the exorbitant freight rates and the anti-national freight policy pursued by the railways.

The United States possess the most prosperous and the most progressive agriculture, not so much owing to the natural wealth of the country as to the energy and enterprise of the American people. The nature and the causes of the progress of America's agriculture may be seen from the following table:

	Number of Farms.	*Value of Farms.*	*Number of Cattle.*	*Number of Horses.*	*Value of Agricultural Machinery Employed.*
		Dols.			*Dols.*
1850	1,449,073	3,967,343,580	17,778,907	4,336,719	151,587,638
1860	2,044,077	7,980,493,063	25,616,019	6,249,174	246,118,141
1870	2,659,985	8,944,857,749	25,484,100	8,249,000	270,913,678
1880	4,008,907	12,180,501,538	33,258,000	11,202,000	406,520,055
1890	4,564,641	16,082,267,689	52,801,907	14,214,000	494,247,467
1900	5,737,372	20,439,901,164	43,902,414	13,538,000	749,775,970
1910	6,361,502	40,991,449,090	69,080,000	21,040,000	1,265,149,783

Between 1850 and 1910 the number of American farms has increased a little more than fourfold, while their value has grown more than tenfold. Vast improvements have taken place throughout the agricultural districts. The number of cattle has increased almost fourfold and that of horses almost fivefold. The principal reason for the increase in the value of the farms lies, of course, in the vast increase of the American crops, which increase is due principally to the general use of the most powerful labour-saving machinery. It will be noticed that between 1850 and 1910 the value of agricultural machinery has increased eightfold. As the price of agricultural machinery has rapidly fallen during the period, it follows that the quantity of agricultural machinery used has increased far more than eightfold. It is also worth noting that the produce per acre has steadily been rising through the continuous improvement in cultivation.

Although the United States have a most flourishing and a most prosperous agriculture, they have not neglected their manufacturing industries. Agriculture and manufacturing have been simultaneously promoted, as the following comparative figures will show:

	Value of Manufactures.	*Value of Agricultural Produce.*
	Dols.	*Dols.*
1850	1,019,106,616	?
1860	1,885,861,676	?
1870	4,232,325,442	1,958,030,927
1880	5,369,579,191	2,212,540,927
1890	9,372,378,843	2,460,107,454
1900 ..	11,406,926,701	4,717,069,973
1910	20,672,051,870	8,498,311,413
1915	24,246,434,724	13,449,310,000

It will be noticed that agricultural production and the production of manufactures has increased enormously. The progress of the two has been approximately equally great. To many the United States are still principally an agricultural country. In reality the principal wealth of the United States is now derived from manufacturing. In 1915 the wholesale value of manufactured goods produced was $24,246,434,724, which is equal to £4,849,286,945. In 1907 the total income of the United Kingdom was £2,000,000,000, according to the British *Census of Production*. It follows that by manufacturing alone the United States derive an income which is considerably more than twice as great as the British income derived from manufacturing and all other sources combined. It is therefore clear that in manufacturing the United States are far ahead of the United Kingdom. Nevertheless, there are party politicians and economists of the *laissez faire* school who assert that England is the richest country in the world, that she is still the workshop of the world, and that she is the foremost country in manufacturing. They point proudly to her paper wealth, such as her clearing-house returns, her discount rate, the price of her Consols, her foreign investments, etc.

The marvellous advance in manufacturing in the United States, like America's wonderful advance in agri-

culture is due to the most lavish use of the most perfect machinery whereby the productive power of men can be increased indefinitely. The engine-power used in the American manufacturing industries has increased in the following remarkable manner:

	Horse-Power.
In 1870	2,346,142
In 1880	3,410,837
In 1890	5,938,635
In 1900	10,097,893
In 1905	13,487,707
In 1910	18,675,376
In 1915	22,547,574

Since 1870 the engine-power employed in manufacturing has increased almost tenfold. It almost doubled between 1880 and 1890 and between 1900 and 1910. The employment of electrical machinery shows the following tremendous progress:

	Horse-Power.
In 1890	15,569
In 1900	492,936
In 1905	1,592,475
In 1910	4,817,140
In 1915	8,847,622

Unfortunately, no comparisons can be instituted between the mechanical outfit of the British and the American manufacturing industries, or between the values produced in agriculture and manufacturing in the two countries, for the excellent reason that England possesses no statistics relating to these subjects. Exact information regarding the position and progress of the British industries, the charges of the railways, etc., is wanting. The most necessary and the most indispensable information required by the statesman, the administrator, and the business man cannot be obtained, because the body economic stands under the influence of the speculator and the middleman, who does not require exact information, and whose principal aim it is to snatch a profit at the cost of the producers or of the consumers, or of both, by rigging the market, by cornering supplies, and especially by creating an artificial scarcity. For the efficient conduct of the national business complete statistics are as indispensable as is careful book-keeping for the efficient conduct of any private business. Gamblers and punters require, of course, no exact data. When careful observers pointed out that the British industries had become stagnant and were relatively declining, that agriculture was being destroyed, that the British iron and steel industry was falling from the first rank to the second and then to the third rank in the world, they were told that the United Kingdom was still the foremost industrial country in the world, and that assertion was "proved" by the figures of Britain's foreign trade, as if foreign trade were synonymous with production. In the absence of exact statistical information, the disastrous effect of mistaking paper wealth for real wealth, of allowing great industries—such as agriculture—to decay, of encouraging speculation and discouraging production, of restricting the population, of antagonising machinery, and of limiting to the utmost the output of commodities, was discovered only when Great Britain and the British Empire had lost their former industrial pre-eminence, when the disastrous effect of the policy pursued could no longer be hidden or be explained away.

The United States will certainly continue the policy of encouraging population and production which they have followed hitherto with such brilliant success. Hence the future prospects of the Great Republic are exceedingly bright. In the Report of the National Conservation Commission of 1909 a cautious estimate of the future growth of the American population, based upon its past increase, was made. It was as follows:

UNITED STATES POPULATION.

Year.	*Population.*	*Increase.*	*Rate of Increase.*
			Per Cent.
1790	3,929,000	—	—
1800	5,308,000	1,379,000	35
1810	7,240,000	1,931,000	36
1820	9,638,000	2,399,000	33
1830	12,866,000	3,228,000	33
1840	17,069,000	4,203,000	33
1850	23,192,000	6,122,000	36
1860	31,443,000	8,251,000	36
1870	38,558,000	7,115,000	23
1880	50,156,000	11,597,000	30
1890	62,622,000	12,466,000	25
1900	75,569,000	12,946,000	21
1910	90,000,000	14,431,000	21
1920	104,000,000	14,000,000	16
1930	119,000,000	15,000,000	14
1940	134,000,000	15,000,000	13
1950	150,000,000	16,000,000	12
1960	167,000,000	17,000,000	10
1970	184,000,000	17,000,000	10
1980	202,000,000	18,000,000	10
1990	225,000,000	23,000,000	11
2000	249,000,000	24,000,000	11
2010	274,000,000	25,000,000	10
2020	299,000,000	25,000,000	9
2030	325,000,000	26,000,000	9
2040	350,000,000	25,000,000	8
2050	375,000,000	25,000,000	7
2060	400,000,000	25,000,000	7
2070	425,000,000	25,000,000	6
2080	450,000,000	25,000,000	6
2090	475,000,000	25,000,000	5
2100	500,000,000	25,000,000	5

Even if the increase of the population should continue slackening, as it did between 1790 and 1900, the population of the United States should come to 249,000,000 in the year 2000, and to 500,000,000 in the year 2100. If *wealth per head should during that period remain absolutely stationary*, the United States would have in the year 2000 a national wealth of £93,700,000,000, and in the year 2100 a national wealth of £187,500,000,000. However, as wealth per head has increased fourteenfold between 1790 and 1912, it is fair to assume that it will grow tenfold in each of the succeeding centuries, partly through the progressive increase in men's productive power, partly through the continued depreciation of the currency. Hence the national wealth of the United States may amount to the almost unimaginable sum of £930,700,000,000 in the year 2000, and to £18,600,000,000,000 in the year 2100. The latter sum would be a thousand times as large as the present wealth of the United Kingdom.

The British Empire, spreading over all continents and climes, is four times as large as the United States. It can nourish a far greater white population than the United States, and it has probably greater latent resources of every kind. If a wise policy of encouraging population and production should be pursued, the British Empire ought, a century hence, and two centuries hence, at least to equal the United States in population, production, and wealth. To a population of 250,000,000 white men, possessing sixty times as much property as the present national wealth of the United Kingdom, and to a population of 500,000,000 men possessing property worth a thousand times as much as the present national wealth of the United Kingdom, the few thousand million pounds which the War may cost will appear a ridiculous trifle. It will appear as ridiculous to the people then living as appears to the present generation the national wealth of Great Britain in the time of Charles II., which then amounted to £250,000,000. The cost of the War, however great it may be, even if eventually it should vastly *exceed the so-called national wealth of Great Britain, is* a trifle compared with Britain's possible and probable future wealth. It can easily be borne by future generations. It will scarcely be felt in a decade or two, if the Empire emerges victorious from the struggle, and if its boundless resources are utilised to the full by the policy of encouraging the increase of population and of production. How this may be done will be shown in a subsequent chapter. The United States have shown Britain the way. If, on the other hand, Great Britain should be defeated, Germany would undoubtedly endeavour to prevent the rise of a dangerous competitor and opponent by breaking up the United Kingdom and the British Empire, and by depriving the British race of those essential natural resources upon which depend its future greatness, strength, and prosperity.

The expansibility of the British national revenue is practically unlimited. That may be seen by its continuous and gigantic increase in the past. According to Sir John Sinclair's excellent book, *The History of the Public Revenue*, published in 1803, it has grown as follows up to 1800:

British Government Revenue.

		£
In the time of	Queen Elizabeth	500,000
,,	James I.	600,000
,,	Charles I.	895,819
,,	The Commonwealth	1,517,247
,,	Charles II.	1,800,000
,,	James II.	2,001,855
,,	William III.	3,895,205
,,	Queen Anne	5,691,803
,,	George I.	6,762,643
,,	George II.	8,522,540
,,	George III. (1760)	15,572,971
,,	,, (1800)	36,728,000

In 1913-1914 the British revenue was £199,011,000, in 1917-1918 it was £707,234,565, and it should, according *to Mr. Bonar Law's Budget estimate, amount to £842,050,000 in 1918-1919.*

The steady and enormous increase of the public revenue promises to continue in the future unless the Anglo-Saxon race should be defeated in the present War, unless the British Empire and the United States should go under. Britain's financial record of the past and the promise of the future should give courage to the short-sighted and faint-hearted few who, considering money more precious than life, advocate that Great Britain should make peace to avoid national bankruptcy, who see in defeat the lesser evil, who urge upon her to commit national suicide, and who are at pains to discover a formula wherewith to disguise Britain's surrender. Perhaps these pages will alter their views. At any rate, they show that the United Kingdom is like a mine of vast unexplored wealth and of infinite promise, the scientific exploitation of which has scarcely begun, and that the riches of the British Empire are gigantic beyond all conception, and are absolutely unfathomable.

CHAPTER IV

THE INEFFICIENCY OF THE BRITISH TRANSPORT SYSTEM AND OF BRITISH AGRICULTURE—SOME LESSONS FROM AMERICA*

In the previous chapter I endeavoured to show that the cost of the War, even if it should eventually exceed what is erroneously called Britain's national wealth, is a matter of secondary importance, provided the struggle be brought to a victorious end; that the latent resources of Motherland and Empire are practically boundless; that the wealth of the Empire should grow in the future about as rapidly as it has done in the past, owing to the increase of the population, the increase of the productive capacity of man, and the shrinkage in the value of the currency with which we may calculate; that the wealth and the taxable capacity of Great Britain have increased about tenfold since 1815, and may increase once more tenfold during the coming century; that the wealth of the United States has grown three hundred and fortyfold since 1790 and twenty-six-fold since 1850, and is now far greater than that of the British Empire, that, if the British Empire should be vigorously developed in accordance with the methods employed by the United States, the wealth of the Empire should in the year 2000 be about sixty times as great as the present wealth of the United Kingdom, and should in the year 2100 be a thousand times as great as the present wealth of the United Kingdom; that therefore a hundred years hence the cost of the War with Germany may appear as small as that of the Napoleonic War appears to the present generation. Economic progress similar to that effected by America can be expected only if American economic methods are employed, if inefficient traditional methods are abandoned. Let us therefore inquire a little more closely into the causes of America's vast wealth and unparalleled material progress.

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* From *The Nineteenth Century and After*, July, 1918.

Wealth is created by the exploitation of the resources of Nature by man It follows that the increase of the wealth of a nation which is endowed with great natural resources depends mainly upon two factors upon the number of the productively employed and upon the productive efficiency of the workers.

Man is a labour-saving animal In the course of ages he has increased his small natural strength, first by using rough tools made of wood and stone, then by taming animals and causing them to work for him, and lastly by inventing labour-saving machinery driven by water-power, steam and electrical power, by the use of which the strength and efficiency of a single worker can be increased a thousandfold Civilisation is based upon the use of power, and it may be divided into three ages: the age of man-power, the age of animal-power, and the age of engine-power. The last age commenced only yesterday. Man's power may be increased indefinitely by the use of automatic and semi-automatic machinery, and by the discovery and employment of new sources of power such as the tides of the sea, the rays of the sun, and other forces yet undreamt of. Hence the full development of human productivity and of human wealth has only begun.

The Americans have recognised that the wealth and strength of a nation can best be increased by increasing the number of the workers and by enlarging their productive capacity to the utmost extent by providing them with the most powerful and the most perfect labour-saving devices of every kind. Herein lies the cause of America's astonishing advance in power, population and opulence.

THE DEVELOPMENT OF RAILWAYS AND WATERWAYS

The strength and wealth of a great country can best be increased by opening it up to exploitation, by abolishing the distances which separate men, by facilitating to the utmost human intercourse and the exchange of human productions The greatness and power of the Roman Empire were based upon its wonderful system of roads, which were built regardless of labour and expense The greatness and power of the United States are based upon their magnificent railway system, the mileage of which is far greater than that possessed by the whole Continent of Europe, and far greater than that of the entire British Empire Let us therefore first consider what Great Britain and the British Empire may learn from the American railways

The important and the predominant position occupied by the railways in the economy of the United States may be seen from the following extraordinary figures, which are taken from the official Census of Wealth of the United States and which relate to the year 1912:

	Dols.
Value of the railways and their equipment	16,148,532,502
Value of manufacturing machinery, tools and implements	6,091,451,274
Value of farm implements and machinery . .	1,368,224,548

The manufacturing and the agricultural industries of the United States possess the most powerful, the most perfect and the most costly outfit in the world. Yet the value of the American railways, exclusive of the street railways, is considerably more than twice as great as that of all the industrial and agricultural machinery in the country. The wealth represented by the American railways is approximately as great as the entire present wealth of the kingdom of Italy.

The paramount importance of the American railway industry may furthermore be gauged by comparing the man-power employed by the railways with that employed by the two largest groups of American manufactures:

WORKERS EMPLOYED IN 1914.

	Workers.
By the United States railways	1,710,296
By all the textile industries	1,498,664
By the making of iron and steel and their products	1,061,058

America is the land of progress The railway system of the United States is gigantic in size, and is a model and a monument of human competence and of ever-progressive efficiency Industrial progress consists in increasing man's power over Nature by means of labour-saving devices of every kind. The increased efficiency of the American railways during recent years, may be gauged from the following comparative data·

Year.	*Miles of Line*	*Employees*	*Tons Carried.*
1890	167,191	749,301	631,740,036
1895	184,628	785,034	686,614,778
1900	198,964	1,017,653	1,081,983,301
1905	225,196	1,382,196	1,427,731,905
1910 .. .	249,992	1,699,420	1,849,900,101
1913 .. .	251,984	1,815,239	2,058,035,487

Between 1890 and 1913 the mileage of the United States railways has increased by 50 per cent., that of the men employed by them has increased by 142 per cent., and that of the tons of goods carried by no less than 230 per cent. On the Amercan railways were handled, in 1890, 843 tons of goods per employee per year. In 1913 there were handled 1133 tons of goods per employee per year. Notwithstanding the considerable shortening of the hours of labour during the period under consideration, the quantity of goods handled per man was increased by nearly 40 per cent., not because the men had to work harder, but because of the vast improvements made in the organisation and in the mechanical outfit of the railways. Vast labour-saving reforms were effected and the most perfect labour-saving appliances were introduced. The advance made with regard to the mechanical outfit of the railways in some directions can easily be summarised statistically.

Year.	*No. of Locomotives.*	*No. of Railway Cars.*	*Tons of Goods Carried.*
1895	35,699	1,270.561	686,614.778
1900	37,663	1,450.838	1,081,983,301
1905 . .	48,357	1,842,871	1,427.731,905
1910	58,947	2,290.331	1.849.900.101
1913	63,378	2,445.508	2,058,035,487

Between 1895 and 1913 the number of locomotives and of railroad cars was less than doubled, but during the same period the weight of goods carried by the railways was more than trebled It follows that the hauling energy of the average engine and the carrying capacity of the average railway waggon was increased by considerably more than 50 per cent. It therefore becomes clear that during recent years not only the efficiency of the average railway worker, but also that of the average engine and truck has been vastly augmented.

The extraordinary and unceasing improvement which has been effected in the outfit of the American railways will become still clearer from the following most interesting table:

Year.	*Average Tractive Power of Single Expansion Locomotives.*	*Average Weight of Single Expansion Locomotives.*	*Average Carrying Capacity of—*				
			Box Car	*Coal Car.*	*Flat Car*	*Stock Car.*	*All Cars*
	Lbs	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons.*
1903	21,156	46	28	33	27	25	29
1905	23,178	51	29	34	28	26	31
1907	25,439	56	31	38	31	29	34
1909	26,300	58	32	40	32	29	35
1911	27,771	61	34	42	33	30	37
1913	29,595	65	34	44	35	31	38

In 1913 there were in the United States 60,131 single expansion locomotives. They formed 95 per cent. of all the locomotive engines existing. It will be noticed that in the short space of time between 1903 and 1913 the weight and the tractive power of the average locomotive engine have been increased by 40 per cent. During the same period the average four-cylinder compound engine has increased in weight from 70 tons to 107 tons, with a similar increase in hauling capacity. In order to cheapen transport, larger and ever larger engines are being built. The most powerful locomotive made by the Baldwin Works in 1914 weighed 426.5 tons and hauled 251 huge 50-ton cars fully loaded. They formed a train which was 4¾ miles long. It represented a dead-weight of 17,912 tons, while the actual load weighed 12,550 tons. Scientific railroading has only begun.

The improvement made in the cars for carrying goods was as striking as that of the locomotives. Between 1903 and 1913 the carrying capacity of the average box car grew from 28 tons to 34 tons, that of the average coal car from 33 tons to 42 tons, that of the average flat car from 27 tons to 35 tons, that of the average live-stock car from 25 tons to 31 tons, and that of all cars from 29 to 38 tons. America knows no standstill. It will be noticed that year by year, without exception, the size of the average locomotive and of the average car has been increasing.

While the average car on the United States railways carries now about 40 tons—vast numbers of coal and ore cars carry from 80 to 100 tons each—the British railways still employ ridiculous little trucks carrying 4, 5, 8 or 10 tons, exactly as they did in the time of George Stephenson, and much time is wasted in adjusting tarpaulins. A truck constructed to carry more than 10 tons is a rarity on the British railways. Unfortunately, no exact British statistics similar to the American ones can be published, because these are not accessible. There is, of course, a great economy in using large cars. A shunter can handle as easily a large car as a small one. If the British railways employ five small cars instead of one large one, they have to employ five times as many men for shunting, book-keeping, repairing, etc., and have to spend five times as much money for these services. Besides, there is, of course, a greater percentage of dead-weight in five small cars than in a single large one.

By increasing from year to year the power of the locomotive engines and the size of the cars, and by effecting vast improvements in the permanent way, such as providing heavier rails, abolishing gradients and curves, strengthening bridges, widening cuttings and tunnels, etc., the Americans have been able to increase the average weight carried per train in the most extraordinary manner, as is proved by the following official figures:

AVERAGE NUMBER OF TONS CARRIED PER TRAIN.

	Tons.
In 1890	177·42
In 1895	189·69
In 1900	270·86
In 1905	322·26
In 1910	380·38
In 1913	445·43

The foregoing are merely average figures. Unfortunately, no similar figures are available for Great Britain, although such figures are necessary to ensure efficiency. The average British train-load amounts probably only to about 100 tons. A load of 150 tons is considered a heavy one on an average. Occasionally one sees mineral trains which carry 600 tons of coal with the help of two panting engines, but that sight is a rare one. To carry large quantities of goods by means of toy-engines, toy-trucks and toy-trains is an appalling waste of man-power. It is as wasteful a proceeding as it would be to remove the contents of a house, not in a roomy pantechnicon, but by means of twenty cabs The inefficiency of the British railways causes an extraordinary waste of man-power, coal, money, etc , and is a source of endless annoyance and delay.

While in 1913 the average American train-load was 455 43 tons against an English average load of perhaps 100 tons, large numbers of coal trains, ore trains, and mixed goods trains may be seen any day in the United States which carry 3,000, 4,000 and more tons with the help of a single engine. In the nineteenth volume of the Report of the United States Industrial Commission of 1902 we read:

The Illinois Central, for its low grade and long haul to the Gulf, has recently constructed locomotives capable of hauling 2,000 tons of net paying load. Even this

> figure has recently been surpassed by the New York Central, which, with its monster new Mogul engines, is planning to haul eighty loaded 30-ton cars, giving 2,400 tons of revenue freight. From these figures it certainly appears that train-loads for long haul may soon be standardised at not less than 2,000 tons.

That was written in 1902, when the great improvement in freight-carrying had only begun

During the last few decades railway wages, taxes, and the cost of materials have risen enormously in the United States. Vast sums have been spent by the railways on betterments. Nevertheless, the railways have been able at the same time to lower their rates and to increase their earnings owing to their vast increase in efficiency, whereby their increased expenses have been more than counteracted This double effect is brought out in the following table:

Year	*Revenue per Ton Mile.*	*Revenue per Passenger Mile.*	*Cost of Running Train One Mile*	*Freight Revenue per Train Mile.*
	Cents.	*Cents.*	*Dols.*	*Dols.*
1890 ..	0.927	2.167	0.96006	1.65434
1895 ..	0.839	2.040	0.93029	1.61190
1900 ..	0.729	2.003	1.07288	2.00042
1905 ..	0.766	1.962	1.32140	2.49689
1910 ..	0.753	1.938	1.48865	2.86218
1913 ..	0.729	2.008	1.70375	3.24347

Between 1890 and 1913 the revenue per passenger per mile has decreased slightly, and that per ton per mile has diminished very considerably. During the same period the cost of running a train one mile and the freight revenue per train mile have almost doubled. The doubled cost of running trains has been balanced by doubling the freight revenue per train mile. The latter was made possible, notwithstanding the substantial lowering of the freight charges per ton per mile and the vastly increased expenses, because the weight carried per train had been more than doubled in the meantime. Comparisons with England are unfortunately impossible, because the British railways do not provide statistics whereby alone their efficiency can be measured, and which are considered indispensable not only in the United States, but in all civilised countries.

The late Mr. James Hill, the great American railway builder and owner, wrote in his book *Highways of Progress*

> The important element in transportation is the freight rate. The average charge in the United States in 1907 is given by the Inter-State Commerce Commission as 0.759 cent per ton per mile . . . In Great Britain it is 2.31 cents. . . .
>
> According to the latest reports, the average annual wage of each employee of all the railroads of the German Empire was $352. The average wage for the same year in Great Britain and Ireland was $261 . In the United States it was $641. The American railway pays the highest wages in the world, out of the lowest rates in the world, after having set down to capital account the lowest capitalisation per mile of all the great countries of the world. No other occupation and no other employer of labour in the country can match this record

Of course, the United States could not build and run railways cheaply had they not possessed cheap iron and steel They were powerfully assisted by the highly efficient American iron and steel industries, which developed mightily under the policy of high protection. After the introduction of high protection iron and steel production increased enormously, and prices fell rapidly, as will be seen from the following figures:

Year.	*Price of Pig Iron.*	*Price of Steel Rails.*
	Dols. per Ton.	*Dols. per Ton.*
1867	44.08	166.00
1870 . ..	33.23	106.79
1880	28.48	67.52
1890 .. .	18.41	31.78
1900 . .	19.98	32.29
1910 . ..	17.36	28.00
1914	15.24	28.00

The iron and steel trades of America have had high protection, and the makers have combined and formed pools, trusts, etc. According to the doctrines of British political economy these two factors should have made for inefficiency and high prices. In reality they have made for efficiency and low prices.

Although the charges of the American railways have been steadily reduced, the proprietors, the capitalists, have not suffered. They have benefited, because the shrinkage in the charges was more than offset by the economies effected by increased efficiency. Between 1890 and 1913 the capital of the American railways has increased from $8,984,234,616 to $19,796,125,712, or has a little more than doubled. During the same period the interest and dividends paid have increased from $308,571,315 to $803,830,306, or have nearly trebled, while the dividends alone have increased from $87,071,613 to $369,077,546, or have more than quadrupled.

American inland transport has been improved and cheapened, not only by land, but also by water. That may be seen from the following figures:

FREIGHT FOR WHEAT FROM CHICAGO TO NEW YORK PER BUSHEL.

Year.	By Lake and Canal.	By Railway only.	By Lake and Rail.
	Cents.	Cents.	Cents.
1870	17.11	33.30	22.00
1880	12.27	19 90	15.70
1890	5 85	14 31	8.50
1900 .. .	4.42	9.98	5.05
1910	5 13	9 60	6.57

Although the American railways provide most excellent facilities for the transport of goods at exceedingly low rates, the United States have striven to supplement railway transport by waterway transport, because the latter can be effected more cheaply than the former Enormous sums have been spent by the national Government and the Governments of the individual States on the improvement of the national waterways and on the construction of canals. Inland transport by water has been made exceedingly efficient and cheap, and the most important waterways, such as the Sault Ste. Marie Canal, have been linked up with the railways, to the vast benefit of the American industries and of the American people.

The development of the American iron and steel industries was greatly hampered by geographical difficulties, which at one time seemed unsurmountable. While in the United Kingdom coal and iron are found side by side, close to the seashore, deposits of these two minerals occur far inland both in Germany and the United States. The difficulty of smelting the iron ore was increased by the fact that both in Germany and the United States the great deposits of iron ore were separated by vast distances from the coal-beds. In Germany and in the United States the iron ore had therefore to be carried to the coal, or the coal to the iron ore, over such large distances and at so vast an expense that the rise of a prosperous iron industry seemed impossible in both countries. At least that was the view which was taken by many British experts some decades ago. Successful competition on the part of the so greatly hampered iron and steel industries of Germany and of the United States with the so greatly favoured iron and steel industries of Great Britain was possible only if Germany and the United States should succeed in transporting enormous quantities of mineral over huge distances at apparently impossibly low rates. The Preliminary Report of the United States Inland Waterways Commission of 1908 stated:

> More than twenty years ago an English student of commercial conditions visited the United States to investigate the outlook of the iron and steel business in this country On his return home he gave assurances to British iron manufacturers that they need have no serious fears of the competition of the United States, because in America the great iron-ore deposits were too far distant from coal. He was positive it would never be possible to bring the ore to the coal, or the coal to the ore, at such rates as would enable production of iron and steel cheap enough to compete with England.
>
> How completely erroneous was this conclusion need not be suggested now, because everybody is familiar with the marvellous facilities for bringing the Lake Superior ores to the Pittsburg iron district, and with the success of the American iron and steel interests in competing with all the world, despite the initial disadvantages which they had to overcome. Witnesses before the British Royal Commission repeatedly declared that the process of bringing the Lake Superior ores first by rail to the docks on the upper lake, then by Lakes Superior, Huron, and Erie to ports convenient to the coal districts, and finally by rail to the seats of the iron industry, was the

greatest achievement in transportation that the world has seen.

So much for the British iron-makers' error in underrating the possibilities of internal transportation in the United States. As to Germany, their error was hardly less striking. In the beginnings of the great development of the German iron trade, English iron interests declined to take German competition seriously because the German ore deposits were considered utterly inadequate for the development of a really great industry, and it was presumed that the transportation of great quantities of foreign ore to the seats of the German industries would be so expensive as to make it utterly unprofitable. Yet, in fact, the Germans have developed an iron industry which is now a matter of concern to every competing country, and which is based, like that of the United States, on a system of extremely cheap transportation. While there is a large and increasing production of iron ore in Luxemburg, which is utilised in the German iron industry, and while Germany itself produces a large and growing annual tonnage of ore, and brings still other large amounts from Austria-Hungary, it is nevertheless true that the major part of the iron ore reduced in Germany comes from the Scandinavian peninsula and from Spain To the canals and canalised rivers of the Empire is due the credit for making it possible thus to bring foreign ores to the German industrial regions Exceedingly low rates are made, and the tonnage handled by rivers and canals is tremendous

Thus it appears that in both the United States and Germany the development of the utmost possibilities of cheap inland water communication is entitled to recognition for having made possible the upbuilding of industries which a generation ago seemed economically impossible. With their great supplies of coal and ore located very close together, and with ocean transportation at their door, British manufacturers seemed assured of a domination in the world's iron trade that could only be ended by exhaustion of their supplies of coal and iron. A very different situation has been brought about largely because of the utilisation of internal water transportation in the United States and Germany.

Development of water transportation has greatly reduced freight charges, induced industrial and commercial development, and contributed vastly to prosperity and wealth.

So firmly is the conviction now established that waterways contribute to national prosperity that those countries in which the Government owns the railroads are foremost in developing waterways. There is thus afforded the curious spectacle of a group of States, having many billions invested in publicly owned railroads, building another system of transportation to compete with the railroads, and turning over this competing system to the substantially free use of the community. More remarkable still is the universal testimony that this policy has paid both in increased railroad profits and in added national prosperity.

Great Britain is the one exception among European industrial countries to the rule of encouraging both rail and water transport British railroad policy has aimed at the suppression of waterway competition, and has pretty thoroughly succeeded. To-day the British business community finds itself paying higher transportation tolls than continental countries, and because of this fact is at a great and increasing disadvantage in competitive markets.

Professor Taussig of Harvard University described in his book *Some Aspects of the Tariff Question,* published in 1915, the difficulty of bringing the American coal and iron ore together. and the way by which it was triumphantly overcome as follows:

Whether the ore goes to the coal or the coal meets the ore halfway, one or both must travel a long journey, by land as well as by water. One or both must be laden and unladen several times. A carriage of 800, 900, over 1000 miles, must be achieved, with two separate hauls by rail. Fifty years ago, even thirty years ago, it would have seemed impossible to accomplish this on a great scale and with great cheapness. . . .

The history of the American iron trade after 1870 thus came to be in no small part a history of transportation. The perfecting of transportation has been almost the most remarkable of the mechanical triumphs of the United States. Great as have been the evils of our railway methods, disheartening as have been some of the results of unfettered competition, the efficiency of the railways has been brought to a point not approached elsewhere largely in consequence of that very competition whose ill-effects have been so often and so justly dwelt on. In the carriage of iron ore and of coal, the methods of railway transportation, which had been developed under the stress of eager competition, were utilised to the utmost; and the same was true of the transfer from rail to ship and from ship to rail again, of the carriage in the ship itself, and of the handling of accumulated piles of the two materials.

The ore is loaded on cars at the mines by mechanical appliances. At the Mesabi Mines the very steam shovel that digs the ore from the ground deposits it in the adjacent car. At the lake high ore-docks protrude hundreds of yards into the water. On top of them run the trains, the ore dropping by gravity from openings in the car bottoms into the pockets of the docks. Thence it drops again through long ducts into the waiting vessels, ranged below alongside the dock. At every step direct manual labour is avoided, and machines and machine-like devices enable huge quantities of ore to be moved at a cost astonishingly low. The vessels themselves, constructed for the service, carry the maximum of cargo for the minimum of expense, while the machinery for rapid loading and unloading reduces to the shortest the non-earning time of lying at the docks. At the other end of the water carriage, especially on Lake Erie, similar highly developed mechanical appliances transfer from boat to railway car again, or, at will, to the piles where stocks are accumulated for the winter months of closed navigation. At either end the railway has been raised to the maximum of efficiency for the rapid and economical carriage of bulky freight. What has been done for grain, for cotton, for lumber, for all the great staples, has been done here also, and here, perhaps, more effectively than anywhere else.

While the greatness and prosperity of the American industries was most powerfully assisted by the cheapness and efficiency of their inland transport system by land and by water, which gives them the priceless boon of the lowest freights in the world, the British railways were, with the connivance of politicians of the *laissez faire* school, allowed to strangle the canals. They destroyed the competition of the British waterways in order to obtain a monopoly of inland transportation. Having obtained that monopoly, they proceeded to charge extortionate freight rates, which are seriously hampering, and which threaten to strangle, the productive industries of the country. Owing to their possessing a monopoly of transportation and owing to the absence of effective Government control, the British railways have scarcely tried to increase their efficiency. They have continually paid for so-called improvements, which should have been made out of earnings, by adding to their capital, and the result is that the British railways have per mile by far the largest capital in the world, and they have found the money for paying increased wages, taxes, prices, etc., by vastly increasing their charges to the public, while the American railways have continually lowered theirs. The result is that Great Britain has the most expensive, and perhaps the least efficient, transport system in the world, while America has the cheapest and the most efficient. Those who urged that British railway transport should be cheapened by greatly increasing railway train-loads, by employing more powerful engines, etc., were told that this was impossible because of the narrowness of the British tunnels and of the weakness of existing bridges, difficulties which, of course, can be overcome, and which were overcome in the United States. Those who urged that scientific and uniform accounting should be introduced by the British railways, so that the causes of their inefficiency could be made clear and the necessary remedies be adopted, were met with a refusal. The British railway system works with an antiquated and most inefficient organisation Its reform is urgently needed. Its improvement and the lowering of its charges should have the happiest effect upon all the national industries. The revival of the British industries will depend largely on the railways They may stifle British production unless they modernise their methods and revise their policy and their tariffs

It is obvious that the American railways have rendered invaluable services in opening up the country and peopling it, that they are largely responsible for the wonderful development of the natural resources of the United States, and for the marvellous expansion of the American industries and their abounding prosperity Now let us summarily compare the railway position of the British Empire and of the United States for the year 1913

	Square Miles of Territory	*Population*	*Mileage of Railways.*
British Empire	12,808,994	439,734,060	134,131
United States	3,026,789	97,028,497	251,984

In 1913 the area and the population of the British Empire were considerably more than four times as great as the area and population of the United States. Yet this vastly greater territory and this vastly greater population possessed only a little more than half as many miles of railway as the Great Republic, notwithstanding the great industrial and financial start possessed by England That is a very humiliating fact. It shows how greatly the development of the Empire has been neglected. If we bear in mind the vast importance of opening up new countries by means of railways, it must be clear that the rapid increase of the white population and of the wealth of the United States is largely due to the extent and the excellence of their railways, while the comparatively slow advance of the British Empire in white population and wealth is largely, and perhaps principally, due to the insufficiency of its railway outfit. If we wish to develop the Empire we must before all develop its means of communication The doubling and quadrupling of the Imperial railway mileage will undoubtedly double and quadruple the number and the wealth of the Empire's white population Railways are perhaps the Empire's greatest and most urgent need

It is scarcely necessary to add that the doubling and quadrupling of the Imperial railway mileage will act as a most powerful stimulant to commerce and to many manufacturing industries, and especially to the iron and steel industries, of the United Kingdom and of the Dominions and Possessions. The American iron and steel industry, by far the greatest in the world, owes its rise very largely to the expansion of the railways The prosperity and population of the British Empire may obviously be vastly increased by a wise, daring and far-sighted railway policy

Convinced of the vast importance of facilitating and cheapening inland transport to the utmost, the United States Government and the Governments of the individual States have spent vast amounts of public money, not only on improving the national waterways, but also on the roads of the country. The public roads of the United States, which used to be a disgrace, are rapidly being improved. In 1914 no less than $249,055,067, or £50,000,000, of State and local funds were spent on their improvement and construction.

THE DEVELOPMENT OF AGRICULTURE.

Agriculture is the most essential of all industries. The United States have vastly improved the national agriculture in all its branches. The prosperity and progress of the American rural industries are due partly to the bounty of Nature, partly to the action of the American Government and people According to most American observers, the prosperity of the rural industries is largely ascribable to the fact that the bulk of the farmland as held under the ownership system., that the whole value of the improvements made falls to the farmers themselves; that they work, not for the landlord, but only for themselves, that every farm-labourer can hope to become the prosperous owner of a freehold farm In 1910 the farmland of the United States was held as follows

			Per Cent.
By owners	598,554,617	acres	68·1
By managers	53,730,865	,,	6·1
By tenants	226,512,843	,,	25·8
Total	878,798,325	,,	100

In 1910 the American farms were worked by 6,259,844 owners, 376,404 managers, and only 618,656 tenants. In the United States there were therefore ten owners to every single tenant farmer In the United Kingdom the reverse position unfortunately obtains Farmers who work for themselves naturally work with more energy and intelligence than farmers who work largely for a landowner, and who know that their improvements may any moment be confiscated That was pointed out by Arthur Young more than a century ago

The American farmers can fairly easily obtain labourers, partly because farm wages are very high, partly because drudgery on the farms has been abolished by the general use of labour-saving machinery, partly because the farm-workers can easily acquire freehold land and houses for themselves, and start farming on their own account.

The steady improvement in cultivation effected may be gauged from the following figures, which are taken from *The Wealth and Income of the People of the United States*, published in 1915 by Mr W I King, and which are based upon the official statistics:

AVERAGE CROP PER ACRE.

Period.	*Corn (Maize)*	*Wheat*	*Oats.*	*Barley.*	*Cotton.*
	Bushels.	*Bushels*	*Bushels*	*Bushels.*	*Bales.*
1866–1875	26·1	11·9	28·1	22·9	—
1876–1885	25·5	12·3	27·6	22·4	0·348
1886–1895	23·5	12·6	25·6	22·6	0·383
1896–1905	25·2	13·5	29·6	25·1	0·405
1906–1912	27·0	14·5	29·1	25·0	0·394

The rural industries of the United States have prospered greatly, not only because they have been blessed with a good soil and climate, because the farmers enjoy the advantages of the freehold system, and because they employ the best labour-saving machinery, but also because they have been mightily helped by the excellent American railways and the cheapness of the freight which they charge, and because the American Government has vastly aided the American agriculturists by its wise and energetic activity. The Final Report of the United States Industrial Commission of 1902 stated:

> Agriculture is the fundamental, if not the most important, industry of any people, and should receive as much direct benefit from legislation as any other industry. Agriculturists are indirectly, but nevertheless vitally, interested in equitable tax laws and in legislation intended to prevent monopoly, either in manufacturing or in

transportation. As consumers of manufactures and producers of farm products, they are doubly affected by unequal or exorbitant freight charges. Their interests will be best conserved, therefore, by low uniform rates for the transportation of freight and by legislation which will promote fair competition in manufactures. The recommendations of the Commissions on these subjects and on taxation will be found in appropriate places elsewhere in this Report

Agriculture has derived more benefit from the establishment of the Department of Agriculture and from its administrative work than from any other Federal legislation The annual injury to fruit and grain from the ravages of insects would probably be double what it is now but for the work of the Department The distribution of weather forecasts has been of incalculable value in aiding farmers to give timely care to crops Its experiments in proving the adaptation of crops to climates and soils have developed agriculture into a science, and thus alike benefited the industry and the country in general

The United States have a number of excellent institutions which serve as intelligence departments to all the economic interests of the country Being staffed with the leading experts, being lavishly endowed with funds, and being administered and directed, not by dryasdust bureaucrats, but by enterprising practical men of business, they have rendered absolutely invaluable services in promoting the prosperity of the people Some of these institutions received the following sums from the United States Government in 1914:

	Dols
Department of Agriculture .	22,208,141
Department of Commerce . ..	10,958,882
Department of Labour .	3,768,904
Inter-State Commerce Commission (Railway Control) .. .	2,010,696
Patent Office	1,460,883
Geological Survey ..	1,368,545
Census Bureau (in last census year 6,419,257 dols.)	1,220,366

Science and research are certainly not starved in the United States as they are in the United Kingdom. Not only the United States Government, but the Governments of the individual States also, maintain richly endowed departments of agriculture, of commerce, of labour, of railway control, etc., which publish numerous invaluable reports. In addition to all these official agencies, there are numerous powerful local and private institutions for the promotion of scientific research, agriculture, commerce, etc

The American Government has promoted agriculture also by draining swamps and by irrigating rainless, or almost rainless, lands By vast irrigation works it has, during recent years, reclaimed 2,921,165 acres of waterless land, an area ten times as large as the county of Bedfordshire, at the cost of $106,368,000. Thus it has converted arid desert lands in the south and west of the country into a veritable paradise

The continuous and rapid progress of America's agriculture may be gauged from the following representative and most remarkable figures.

PRODUCTION OF—

	Wheat.	*Maize*	*Cotton.*	*Wool.*	*Beet Sugar.*
	Bushels.	*Bushels.*	*Bales.*	*Lbs.*	*Lbs.*
1850	100,485,943	592,071,104	2,136,083	52,516,959	None
1860	173,104,924	838,792,740	3,841,416	60,264,913	None
1870	235,884,700	1,094,255,000	4,024,527	162,000,000	896,000
1880	498,549,868	1,717,434,543	6,356,998	232,500,000	2,688,006
1890	399,262,000	1,489,970,000	8,562,089	276,000,000	4,934,720
1900	522,229,505	2,105,102,516	10,123,027	288,636,621	163,458,075
1910	635,121,000	2,886,260,000	11,608,616	321,362,750	1,024,938,000
1914	891,017,000	2,672,804,000	16,102,143	290,192,000	1,466,802,000

The produce of many other crops has increased at a similarly rapid rate.

Exactly as the gigantic expansion of the American railways would have been impossible without the wonderful development of the American iron and steel industries, the mighty progress of agriculture, indicated by these figures, would have been impossible without the extraordinary development of the American manufacturing industries in general, and therefore of the towns, and of the American agricultural implement industry Reapers, self-binders and other labour-saving machines, many of which were invented by Americans, have revolutionised agriculture throughout the world, and have made possible the agricultural conquest of the American West The production of agricultural implements in the United States has increased as follows:

AGRICULTURAL IMPLEMENT PRODUCTION

	Dols.
In 1850	6,843,000
In 1860	17,598,000
In 1870	52,067,000
In 1880	68,640,000
In 1890	81,272,000
In 1900	101,207,000
In 1905	112,007,000
In 1910	146,329,000
In 1915	164,087,000

The Americans possess by far the largest agricultural implement industry in the world Its output has increased twenty-five-fold since 1850 and four-fifths of the machines produced are retained in the United States. In 1850 the value of the agricultural machines and implements possessed by the American farmers came to $151,587,638 In 1910 their value amounted to $1,265,149,783, having increased eightfold Without that mighty increase in labour-saving machinery the vast augmentation of the American crops would, of course, have been impossible

The prosperity of America's agriculture is due not so much to the vastness of the natural resources as to the energy and ability of the American people, and particularly to the employment of labour-saving machinery. The *Encyclopædia Britannica* states under the heading "Agriculture":

> Since 1870 the most important factors in the development of America's agriculture have been the employment of more scientific methods of production and the more extensive use of machinery. . . . A really scientific plough was practically unknown before 1870. Thirty years later the large farms of the Pacific States were ploughed, harrowed and sowed with wheat in a single operation by 50 horse-power traction engines drawing ploughs, harrows and press drills Since 1850 there has been a transition from the sickle and the scythe to a machine that in one operation mows, threshes, cleans and sacks the wheat, and in five minutes after touching the standing grain has it ready for the market. Hay-stackers, potato planters and diggers, feed choppers and grinders, manure-spreaders, check-row corn-planters and ditch-digging machines are some of the common labour-saving devices.
>
> By the 28th of August, 1907, the United States Patent Office had issued patents for 13,212 harvesting machines, 6,352 threshers, 6,680 harrows and diggers, 9,649 seeders and planters, and 13,171 ploughs. In the manufacture of agricultural machinery the United States leads the world. The total value of the implements and machinery used by farmers of the United States in 1880 was $406,520,055; in 1890, $494,247,467, in 1900, $761,261,550—a gain in this last decade of 54 per cent. The total value of the implements and machinery manufactured in 1850 was $6,842,611; in 1880, $68,640,486; in 1890, $81,271,651; in 1900, $101,207,428 These figures, however, are a very poor indication of the actual use of machinery, on account of the rapid decrease in prices following its manufacture on a more extensive scale and by improved methods.

The effects of the new agriculture are apparent from the following figures: By the methods of 1830 it required 64 hours and 15 minutes of man-labour and cost $3.71 to produce an acre of wheat: by the methods employed in 1896 it required 2 hours and 58 minutes of man-labour and cost 72 cents. To produce an acre of barley in 1830 required 63 hours of man-labour and cost $3.59; in 1896 it required 2 hours and 43 minutes and cost 60 cents. An acre of oats produced by the methods of 1830 required 66 hours and 15 minutes of man-labour and cost $3.73; the methods of 1893 required only 7 hours and 6 minutes and cost $1.07. With the same unit of labour the average quantity of all leading crops produced by modern methods is about five times as great as that produced by the methods employed in 1850, and the cost of production is reduced by one-half

The Americans have revolutionised agriculture With the powerful machinery invented, manufactured and employed by them, the productive power of the agricultural worker has in some directions been increased twentyfold and more

The expansion of America's agricultural production has been prodigious and it has been universal It has been due to the rapid increase of the population through births and immigration, to the possession of numerous well-managed railways, to cheap freights, to the increasing use of labour-saving machinery, to the flourishing condition of the American manufacturing industries, which provided agriculture with ready and opulent markets, to the powerful agricultural machinery industry and last, but not least, to the fostering care of the American Government which protected and advanced the agricultural interests in every possible way.

Britain might, and should, learn from America's example. Unfortunately, agriculture has been sadly neglected, not only in the United Kingdom, but in the outlying parts of the Empire as well. Throughout the Empire production, and especially agricultural production, has been largely disregarded, while commerce and speculation have been encouraged. Throughout the Empire production, and especially agricultural production, has been sacrificed to the pursuit of paper profits and of paper wealth, and the interest of the country to that of the towns. Although the British Empire has an area which is more than four times as large as that of the United States, far fewer white people are working on the land in the Empire than in the United States Even Germany maintains within her narrow borders a larger number of white agriculturists than the whole of the British Empire, although the latter is eighty times as extensive as the former. Agriculture is insufficiently developed not only in Great Britain, but also in the Dominions Of the population of all Australia, fully one-third live in the over-crowded capitals, while half of the population of Victoria live in Melbourne, and half of the population of New South Wales in Sydney That is an unhealthy and a deplorable state of affairs.

How grossly the agricultural resources of the United Kingdom have been neglected is clearly proved by the following most extraordinary comparison:

	United Kingdom.	*Germany.*
	Acres.	*Acres.*
Total area	77,721,256	133,585,000
Cultivated area	46,931,637	78,632,139
Woods and forests ..	3,069,070	34,272,841

PRODUCTION IN 1912.

	United Kingdom.	*Germany.*
	Tons.	*Tons.*
Wheat and rye	1,568,700	15,958,900
Barley	1,320,400	3,482,000
Oats	2,915,900	8,520,200
Potatoes	5,726,342	50,209,500
Hay	14,024,222	36,524,915

	United Kingdom.	*Germany.*
	Tons.	*Tons.*
Cattle	11,914,635	20,182,021
Cows	4,400,816	10,914,283
Horses .. .	Not ascertainable	4,523,059
Pigs	3,992,549	21,923,707
Sheep	28,967,495	5,803,445

The gigantic difference in production in Germany's favour shows how vastly British agricultural production may be increased to the great advantage of the agricultural population of the nation as a whole.

The feudal age is past. Feudal tenure of land is not compatible with democracy and with modern production. British agriculture should, without delay, be placed from a feudal on a freehold basis in the United Kingdom and throughout the Empire, and its development should be promoted by the general fostering of production, by the organisation of industry, by a wise policy of migration and rural settlement, by the provision of cheap transport, especially railways, and of storage facilities etc., by the creation of cheap rural credit by the provision of the best scientific organisations and, if necessary, by the imposition of protective tariffs.

A GLANCE INTO THE FUTURE

The development of the latent resources of the world by labour-saving machinery has only begun. The present outfit of industries will probably be completely out of date within a decade or two. Before long electricity may become the preponderant motive force, although coal will remain indispensable in many industries, especially in iron-smelting. The electric current has many advantages over coal, and once more the United States may revolutionise the industrial methods of the world.

The power of labour-saving machinery employed in the

United States is stupendous. The horse-powers used were, according to the *Analyst* of June 3, 1914, as follows:

	Horse-Powers.
Employed in manufacturing	19,400,000
Electric light and power stations	7,700,000
Street and electric railways	3,400,000
Steam railways	50,000,000
Mines and quarries	5,000,000
Various	5,400,000
Total	90,900,000
Motor vehicles	22,500,000
Grand Total	113,400,000

Of all the horse-powers used in the United States, about 75,000,000 depend upon energy generated from coal. According to the present state of geological knowledge, the United States possess the bulk of the world's coal, as I have shown in the previous chapter. The Americans are a far-sighted, active people. Although they possess the most gigantic stores of coal in the world, they do not wish to exhaust them prematurely. They mean to economise their irreplaceable coal as far as possible, while Great Britain is exporting as much as she can. Happily, the United States possess an alternative and inexhaustible source of power in their numerous waterfalls. In a report written by Mr. M. O. Leighton, the Chief Hydrographer of the United States Geological Survey, and published in the Report of the National Conservation Commission, we read.

> It is found that the total power available in the surveyed portions, including storage, is about 53,000,000 horse-power. If this be considered as one-fourth, to correspond with the portion of the country surveyed, the total power of the country, with practical maximum storage, will be about 212,000,000 horse-power.
>
> The second method of computation involves considera

tion of the increase of power available from storage in the several portions of the country in which surveys have been made, and applying the ratio of increase to unsurveyed and similar country in those regions. The topographical surveys, while they cover only one-fourth of the total area of the country, have nevertheless been prosecuted in all sections so that the storage data are applicable to all physiographic types that are comprised within the United States. Applying the information in this way, we obtain a grand total of 230,800,000 horse-power, which, it appears to the writer, is a more accurate figure than that obtained by the first method

In any case, therefore it may be assumed with confidence that, were all practicable storage sites utilised and the water properly applied, there might be established eventually in the country a total power installation of at least 200,000,000 horse-power, and probably much more.

The United States have in reserve a superabundance of water-power, and the demand that inexhaustible water-power should be made to replace exhaustible coal is rapidly growing, especially as electricity generated from waterfalls has many advantages over coal The Monthly Bulletin of the New York Chamber of Commerce for February, 1918, contained a paper entitled "The ABC of Water-Power," which stated:

Two cubic feet of water, which weigh one hundred and twenty-five pounds, by falling a distance of only six feet will produce one horse-power of energy. Falling water in early days was used to turn water-wheels which provided the necessary horse-power to operate near-by factories, chiefly flour mills. Now the falling water is guided by concrete penstocks to powerful water turbines, which whirl great electric generators, and the horse-power thus developed in form of electric current is transmitted for hundreds of miles over small copper wires to cities and towns, where it is used to operate great manufacturing plants, run street railways, and furnish light and heat The plants which produce electricity in this way are known as Hydro-Electric plants.

Hydro-Electric plants cost more and take longer to instal than steam plants, but Hydro-Electric plants have these advantages: the cost per horse-power of energy produced is less, and increased output does not call for a corresponding increase of fuel or labour. The amount that is necessary to set aside annually to cover charges for depreciation for Hydro-Electric plants is estimated to be not more than one-third to one-half of that necessary with a steam plant of like capacity. . .

It is well said that water-power is unlike most other natural resources in that it is not diminished by use, nor is it conserved by non-use Coal which is not used to-day remains to be used hereafter, but the energy of water which is allowed to flow by unused neither decreases nor increases the future supply, but is irretrievably lost. Our supply of coal—the principal source of energy—while vast, is not unlimited. It is estimated that seven to fourteen and even seventeen and one-half tons of coal is consumed in producing one horse-power. The utilisation of water-power results in the saving of this coal for future use. In other words, the real waste of water-power is its non-use. . .

In an article in the *Electrical World* for June 23, 1917, entitled "Why Hydro-Electric Development Lags," Hugh L Cooper treated statistically the release in man-power, coal tonnage, railway facilities and capital that would result from the utilisation of the water horse-power wasted in the United States. He estimates that 740,000 men would be released for other industries or for agriculture if 35,000,000 horse-power for one year were developed hydro-electrically instead of by the equivalent process of coal combustion. Every 50 horse-power developed hydro-electrically releases one man. The change would further effect a saving of 280,000,000 tons of coal and 600,000 freight cars necessary to haul the coal —or four times the number needed to supply the freight-car shortage of March, 1917.

Already many important American industries, such as the agricultural implement industry, the automobile industry, the boot and shoe industry, the clothing industry, the foundry and machine-shop industry, and many others, are based mainly on electric power. Steam-power is rapidly being replaced by electric power. Before long steam railways may be as rare in the United States as horse tramways.

It should be observed that the water-power of the British Empire far exceeds that of the United States. The water-power of Canada alone is supposed to approximate, or even to exceed, that of the United States.

The facts and figures given in these pages show that the United States owe their wonderful progress in population, wealth and power not to their natural resources—which, though magnificent, are probably inferior to those owned by the British Empire—but to the wise and energetic development of their resources by the American Government and people. The American Government and people have not followed a cosmopolitan policy, but a national one. They have not followed a policy of *laissez faire* of aimless drift, favourable to the financier, the speculator, the middle-man, the exploiter, nor a policy of restriction with regard to both population and production. They have followed a policy of energetic action favourable to producton, which, after all, is dictated by common sense. Hence they have attracted immigrants by all means in their power, and have developed their magnificent natural resources to the full. They have pursued neither a short-sighted policy recommended by economic doctrinaires and commercial profit-snatchers, by unproductive speculators and middlemen, nor an equally short-sighted policy favourable to some clamorous section of the inhabitants, but ruinous to the nation as a whole. They have wisely pursued a great and truly national policy, and have developed national production as a whole and in all its branches. Thus the United States have become the largest producers among the nations of the world of many valuable minerals, such as coal, iron ore, copper, silver, zinc, lead, sulphur, petroleum, and the largest producers of various forest productions, especially of timber. They have become foremost among the nations of the world in many agricultural productions, such as wheat, maize, oats, tobacco, cotton, cattle, pigs. They have likewise become the greatest producers in the world of many manufactured articles, such as pig-iron, steel, woollen goods, silk goods, rubber goods, leather, boots, paper, clothing, cutlery, clocks and watches, glass, soap, furniture, motor-cars, electrical machinery, of labour-saving machines of every kind, and possibly of cotton goods, and before long they may be the largest shipbuilders in the world as well. England's industrial paramountcy is gone. The United States have taken their place However, the British race may recover its former great position by energetically developing the unrivalled resources of the Empire.

The intention of the Americans to replace steam-power based on coal by electrical energy based on water-power shows the vastness of America's industrial plans and the greatness of America's industrial future. The United States know no standing still They are not satisfied with the methods employed by their grandfathers. They have no fossilised industries, such as may be found in Great Britain. They recognise that the essence of industry is progress, is change. America's future progress in production and in wealth will probably put into the shade her past advance. Man has only begun to enlist all the sciences in the service of industry. The British Empire is more than four times as large as the United States, and its resources are more varied and are probably far greater than those possessed by the Republic of the West. If the great Imperial resources should be developed with American energy, by American methods, and in accordance with the precedents set by the American Government and people, the wealth of the United Kingdom and of the British Empire will increase at an incredibly fast rate, and future generations may be as surprised at the low cost of the present War as men living now are surprised at the low cost of the British wars of the eighteenth century and of the twenty years' struggle with Napoleonic France. Britain's present wealth may seem to future generations pitiable poverty. The prospects of the British Empire are boundless if the War be brought to a victorious end, and if the unfathomable latent wealth of the Empire be developed with American energy and wisdom

CHAPTER V

THE INEFFICIENCY OF BRITISH INDUSTRIAL PRODUCTION—THE POSSIBILITY OF TREBLING OUTPUT*

The United Kingdom and the British Empire can best pay off the gigantic debt which is accumulating owing to the War, and which may grow to an almost unimaginable figure, by increasing production to the utmost and by developing with the greatest energy the boundless resources with which Providence has endowed them. Thus Britain's wealth and national income may be enlarged so rapidly and so vastly that the cost of the War may seem as insignificant to future generations as the cost of the eighteenth-century war, and even that of the twenty years' struggle with Napoleonic France, appears to men of the present age.

In the previous chapter I have shown that Great Britain and the Empire may profit from America's example by developing rapidly the inland transport system and agriculture in the United Kingdom and the whole Empire, and that population and general wealth and well-being of Motherland and daughter-States may be immeasurably increased by the policy of extending and improving the railways and canals, providing cheap transport and promoting the rural industries with all the means which science, organisation and finance have placed at man's disposal, a policy which has been sadly neglected in the past. In the following pages I shall endeavour to show that the manufacturing industries, which are the principal resource of the inhabitants of the

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* From *The Nineteenth Century and After*, November, 1918.

United Kingdom, have been as much neglected as the British transport system and British agriculture, that the British industries also stand in need of far-reaching reforms, and I shall show the direction in which the British peoples may learn from the American manufacturing industries and from American manufacturing methods as well.

It is very widely believed that the American people owe their enormous wealth mainly to the great extent of their territory and to the wonderful, vast and varied resources of the soil; that the bulk of their income is derived from their powerful rural industries, their wealthy mines and their extensive forests. The United States have undoubtedly been singularly blessed by Nature. Among the nations of the world the American people are the largest producers of wheat, maize, oats, tobacco, cotton, cattle, pigs, timber, coal, iron ore, copper, silver, zinc, lead, sulphur, petroleum, etc. Although the United States possess a world-dominating position in some of the most valuable foodstuffs and in some of the most precious raw materials, the principal source of the country's wealth lies, not in its fields, forests and mines, but in its factories. The colossal income of the people, which is at least three times as great as that of the inhabitants of the United Kingdom, is chiefly won, not in the vast expanses of their plains and mountains, but within the narrow limits of their towns. This may be seen from the following official figures:

VALUE OF PRODUCTION IN 1909–1910.

	Dols.
Manufacturing industries	20,672,051,870
Agriculture	8,498,311,413
Mining	1,992,431,412
Forestry	684,479,859
Fisheries (1908)	65,567,555
Total	31,912,841,209

It will be noticed that in 1910 the productions of the American manufacturing industries represented a value which was almost twice as great as that of the productions of agriculture, mining, forestry and fishing combined.

Many Englishmen still believe that Great Britain is the greatest industrial country in the world. That belief, which has been fostered by party politicians and pseudo-economists of the *laissez faire* school, is totally unfounded. Until lately the productivity of the British industries was unknown. Statesmen, economists and others interested in economic facts had to rely upon guesswork. Many endeavoured to prove the supremacy of Britain's industries by means of the delusive export figures. In 1907 a Census of Production for the United Kingdom was taken for the first time. Hence a fairly exact comparison can at last be instituted between British and American industrial production. The age of industrial fiction is gradually being replaced by that of industrial fact.

While the first British Census of Production relates to the year 1907, the eighth American Census of Production —the first was taken as early as 1850—relates to the year 1909. The interval of two years between the two Censuses is so small that the result obtained may in fairness be compared. Perhaps it would be best that in the future British Censuses would be made to coincide in date with the American Censuses According to the two official documents, American and British industrial production was in 1907 and 1909 as follows:

	No of Workers.	*Value of Products.*
		£
United States, private manufacturing industries only, in 1909 ..	6,615,046	4,134,412,000
United Kingdom, industries of all kinds, including the production of public utilities, such as gas and waterworks, etc., in 1907 ..	6,919,746	1,617,340,000

It will be observed that the number of workers in the American industries was only 10 per cent. greater than that of the British industries, while the value of their productions was more than two and a half times as great. In other words, one American industrial worker had, on the broadest average, as great an output, measured at wholesale prices, as had from two to three British workers. Some wholesale prices of manufactured goods are slightly higher in the United States than in England and some are slightly lower. On an average the wholesale, but not the retail, price level is almost identical in the two countries. Hence exported American goods can, and do, compete freely with British goods, not only in neutral markets, but in the British home market as well The higher price of American goods, when bought retail in the United States, is due to the greater cost of retailing in that country, owing to higher wages for shop-assistants, etc. It follows that one American worker produced approximately as much as from two to three British workers. Probably the average American worker produced at least three times as much, as will presently be shown. This superiority in individual production is a most interesting and most important factor which will be discussed farther on

Comparisons of the totals given would seem to show that the industrial production of the United States is two and a half times as great as that of the United Kingdom. In reality it is considerably greater. The British Census total sums up the money value of all industrial activities. It includes not only all factory production, but dwarf industries, non-factory production, carried on in shops and private houses, as well. In addition it includes the value of houses built and of house repairs, of laundry work done, of railways, telegraphs and telephones constructed or repaired, of the work done by the productive national and municipal services such as warship-building by the Government, municipal gas and water works, etc., all of which are left out of the American total. Lastly, it includes the production of mines and quarries. In giving the British total for comparison with the American total, I have deducted the value produced by the mines and quarries, which is omitted from the American figure, but I have preserved the large item of public utilities, such as gasworks, waterworks, etc., because some of these services are in private hands in the United States, and appear, therefore, under the heading of Private Industries in the American Census. The American total sums up only the production of factories in the accepted sense of the word It expressly excludes not only the produce of the public services, but also the laundry industry, the important item of house-building and repairing, and all those non-factory industries which are officially described in the United States as "Hand and Neighbourhood Industries." The latter alone produced in 1900, when they were specially accounted for, £318,645,000 worth of goods. If we add to the American total this important sum and deduct from the British total the large values produced by the housebuilders and repairers and by the productive undertakings of the State and of the municipalities, and the various other items which do not appear in the American total, it will be clear that in 1907-1909 the manufacturing industries of the United States produced at least three times as much as the manufacturing industries of the United Kingdom, and that all the industrial activities of the United States produced likewise at least three times as much as all the industrial activities of the British Isles. The fact that American industrial production was in 1907-1909 at least three times as great as British industrial production cannot be gainsaid. Britain has lost her former industrial supremacy to the United States.

In the British and in the American Censuses of Production the numerous industries for which statistics are given are divided into a few large groups. Let us now compare the British and American industries by groups. As the grouping has not been absolutely identical in the two countries, some rearrangement was necessary to make the results fairly comparable. The rearrangement effected yields the following comparative and comparable data:

British and American Industrial Production in 1907–1909.

	United States in 1909	United Kingdom in 1907.
	£	£
Manufacture of food, drink, and tobacco	1,020,219,000	197,734,000
Iron and steel and their products, inclusive of land vehicles, railway vehicles, railway repair shops, shipbuilding, agricultural and electrical machinery, etc.	924,704,000	375,196,000
Textiles and clothing	612,398,000	441,554,000
Timber and Woodworking Trades	337,655,000	46,390,000
Leather and Leather goods	198,543,000	34,928,000
Paper and printing	235,857,000	61,308,000
Chemicals	305,320,000	75,032,000
Stone, clay and glass (exclusive of building and repairing)	106,347,000	29,608,000
Productions of metal, exclusive of iron and steel	248,082,000	93,465,000
Various	280,138,000	34,564,000

While the production of the textile and clothing trades was 40 per cent. greater in the United States than in the United Kingdom, that of the American iron and steel industries was nearly two and a half times as great as that of the British. The production of the other metal industries was more than two and a half times as great in

America as in the United Kingdom; that of the stone, clay and glass-working industries was more than three and a half times as great; and that of paper and printing nearly four times as great. The output of chemicals in America exceeded that of the United Kingdom more than four times, and that of manufactured food, drink and tobacco more than five times. That of leather and leather goods was more than five and a half times, that of the wood-working industries was seven times, and that of the not classified industries more than eight times as great in the United States as in Great Britain. In giving the total of the stone, clay and glass-working industries, I have deducted from the British figures the value of building and repairing, as corresponding figures are not included in the American total. I have not been able to obtain the American building and repairing totals, but only the cost of the American buildings raised in the fifty-one principal cities. Their value compared as follows with that of the buildings erected in the whole of the United Kingdom:

	£
Value of buildings raised in fifty-one principal United States cities only in 1909	154,187,000
Value of buildings raised in the whole of the United Kingdom in 1907	39,378,000

The value of American buildings constructed in the fifty-one great towns alone was nearly four times as large as that of the British buildings erected in the whole of the United Kingdom. If figures were available for the whole of the United States, the value of the American building operations would probably be at least five times as great as that of the British building operations. It is worth noting that New York and Brooklyn alone constructed in 1909 buildings to the value of £50,063,000, a figure which exceeds that for the whole of the United Kingdom by more than 25 per cent.

The superiority in production possessed by the great American industries over the British industries is obviously overwhelming. This impression is strengthened by comparing a few representative individual industries of the two countries :

	United States in 1909.	*United Kingdom in* 1907.	*Superiority.*
Shipbuilding and repairing exclusive of warships	£ 14,672,000	£ 41,039,000	British 3-fold
Cotton goods ..	125,678,000	132,000,000	.. 5%
Dyeing and finishing textiles	16,711,000	18,000,000	,, 8%
Brewing and malting	82,616,000	67,254,000	American 25%
Soap and candles ..	22,898,000	12,707,000	.. 2-fold
Cocoa, chocolate and confectionery ..	31,437,000	16,171,000	.. 2 ,,
Matches	2,271,000	862,000	.. 2½ ,,
Paint, colours and varnish	24,978,000	9,127,000	.. 2½ ,,
Railway carriages and waggons	24,746,000	9,850,000	.. 2½ ,,
Pens and pencils ..	2,539,000	791,000	.. 3 ,,
Hats and caps ..	16,598,000	5,256,000	.. 3 ,,
Clothing	190,566,000	62,169,000	.. 3 ,,
Glass and glassware	18,419,000	4,899,000	,, 3½ ,,
Cement	12,641,000	3,621,000	,, 3½ ,,
Leather tanning and dressing	65,575,000	18,289,000	,, 3½ ,,
Paper	53,531,000	13,621,000	,, 4 ,,
Gloves	4,726,000	1,056,000	,, 4½ ,,
Hosiery	40,029,000	8,792,000	,, 4½ ,,
Boots and shoes ..	102,359,000	20,095,000	,, 5 ,,
Cutlery and tools ..	10,653,000	2,047,000	,, 5 ,,
Cardboard boxes ..	10,970,000	2,067,000	,, 5½ ,,
Wooden furniture ..	43,207,000	7,684,000	,, 5½ ,,
Butter and cheese ..	54,911,000	10,164,000	,, 5½ ,,
Fertilisers	20,794,000	3,552,000	,, 6 ,,
Silk goods	39,382,000	5,345,000	,, 7½ ,,
Pianos, organs, etc...	17,957,000	1,865,000	,, 9½ ,,
Firearms and Ammunition	6,822,000	677,000	,, 10 ,,
Clocks and watches..	7,039,000	613,000	,, 11½ ,,
Motor-cars	49,840,000	3,585,000	,, 14 ,,

The advocates of the policy of *laissez faire* frequently assert that Great Britain is the foremost industrial nation in the world. They habitually "prove" that reckless assertion by pointing to the figures of England's foreign trade and to England's supremacy in shipbuilding and the cotton industry. In the table given all the individual industries are included for which comparative data of output are available. They show that in 1907-1909 the output of the British shipbuilding industry was three times as great as that of the American shipbuilders. Unfortunately, it seems likely that England's paramountcy in shipbuilding may be transferred to the United States in consequence of the War. Besides, the shipbuilding industry is not as important as is generally believed. Measured by value, it represents only one-fortieth of England's industrial production. The yearly output of the cotton industry is more than three times as valuable as that of shipbuilding. In the cotton industry English production had in 1907-1909 an advantage of nearly 5 per cent. over the United States, while the British dyeing and finishing of textiles had an advantage of nearly 8 per cent. In these two industries England's superiority was infinitesimal, and had probably disappeared before the War. In brewing and malting the Americans were only 25 per cent. ahead of the British, but in all the other industries enumerated America's superiority over the United Kingdom was very great, ranging from twofold in the case of soap and candles, cocoa, chocolate and confectionery, in the making of which little skill is required, to a fivefold American superiority in boots and shoes, cutlery, furniture, etc., to a more than sevenfold superiority in silk manufactures to a more than ninefold superiority in pianos and organs, and to a fourteenfold superiority in motor-cars. It is significant that, shipbuilding excepted, England's industrial position is strongest in those industries which are carried on by the cheapest, and largely by female and juvenile, labour, and that America's superiority is greatest in those industries which require the highest degree of scientific organisation, the most perfect and the most powerful machinery, and the greatest technical skill.

Now let us study the progress of some American industries since 1850, the year when the first Industrial Census was taken:

Year.	*United States Population.*	*Number of Wage-Earners.*	*Value of all Industrial Products.*
			Dols.
1850	23,191,876	957,059	1,019,106,616
1914-1915 ..	98,646,491	7,036,337	24,246,434,724

Between 1850 and 1914-1915 the population of the United States increased fourfold, the number of industrial wage-earners sevenfold, and the value of their industrial productions no less than twenty-four-fold. During the period under consideration the value of output increased three and a half times as fast as the number of the workers. In other words, the average production per worker, measured by value, was in 1915 three and a half times as great as it was in 1850. However, as the prices of most manufactured goods have been greatly reduced since 1850, the quantity of goods produced per worker has increased considerably more than three and a half-fold, notwithstanding the great shortening of working hours. Mechanical progress has evidently more than quadrupled the productive power of the average American factory worker since the middle of the last century.

It is very interesting to follow the development of some of the American industries in detail.

Year.	Pig-Iron.	Cotton Goods.	Woollen Goods.	Silk Goods.
	Tons.	*Dols.*	*Dols.*	*Dols.*
1850 ..	563,755	61,869,184	48,608,779	1,809,476
1860 ..	821,223	115,681,774	73,454,000	6,607,771
1870 ..	1,665,179	177,489,739	199,257,262	12,210,662
1880 ..	3,835,191	192,090,110	238,085,686	41,033,045
1890 ..	9,202,703	267,981,724	270,527,511	87,298,454
1900 ..	13,789,242	339,200,320	296,990,494	107,256,258
1910 ..	27,303,567	628,391,813	507,166,710	196,911,677
1915 ..	30,966,152*	701,301,000	464,249,813	254,011,000

Since 1850 the production of woollen goods has increased tenfold, that of cotton goods eleven and a half-fold, that of pig-iron fifty-five-fold and that of silk goods one hundred and fifty-fold. In 1850 American production in these was quite insignificant compared with British production. Now the United States are by far the largest producers in the world of iron and steel and of the goods made from them, of woollen goods and silk goods, and very likely their cotton industry has by now overtaken that of Great Britain as well.

In 1846 England introduced Free Trade. Mr. Cobden had assured his political and industrial opponents and all those who doubted the wisdom of that policy that England's industrial supremacy was unchallenged and unchallengeable; that England "was, and always would remain, the workshop of the world" At that time England mined two-thirds of the world's coal, produced two-thirds of the world's iron, worked up two-thirds of the world's cotton, possessed two-thirds of the world's shipping, etc. Since then England has lost her industrial paramountcy, which she had acquired under the most rigid form of Protection, and the United States have taken her place as the world's principal and most prosperous manufacturer. During the Free Trade period some British industries have prospered and progressed, and others, such as agriculture, the silk industry, etc., have declined and decayed. Progress is a term of comparison. Progress is not absolute, but is relative. Compared with the tremendous industrial advance made by the manufacturing industries of the United States since 1850 under high Protection, that of the British industries on the whole made during the same time under Free Trade is quite insignificant.

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* The figures for 1913 have been given, as the War made American iron production temporarily abnormal.

Before 1850 the Americans were a nation of frugal farmers. Since then they have become the greatest and the richest industrial nation in the world. How profoundly social conditions and the life of the people have been affected by this change may be gauged from the following figures:

PRODUCTION OF

Year.	*Men's Clothing.*	*Women's Clothing*	*Furniture.*
	Dols	*Dols*	*Dols.*
1850	48,312,000	?	17,663,000
1860	80,831,000	7,181,000	25,632,000
1870 ..	148,660,000	12,901,000	68,522,000
1880 ..	209,548,000	32,005,000	77,846,000
1890 .. .	251,020,000	68,164,000	111,743,000
1900	276,717,000	159,340,000	125,316,000
1905	355,797,000	247,662,000	170,447,000
1910	485,677,000	384,752,000	229,197,000
1915	458,211,000	473,888,000	265,706,000

Year.	*Bread and Bakery Products.*	*Confectionery.*	*Beer.*	*Cigars and Cigarettes.*
	Dols.	*Dols*	*Dols.*	*Dols.*
1850	13,294,000	3,041,000	5,729,000	?
1860 ..	16,980,000	5,361,000	21,311,000	9,069,000
1870 ..	36,908 000	15,923,000	55,707,000	33,374,000
1880 .	65 825,000	25,637,000	101,058,000	63,980,000
1890 ..	128 422 000	55,997,000	182,732,000	129 693,000
1900 .	175,369 000	60 644 000	236,915,000	159 959,000
1905 .	269,583,000	87,087,000	298 346,000	214 344,000
1910	396,865 000	134,796,000	374 730,000	260,088,000
1915	491,893,000	170,845 000	442 149,000	314,884,000

Between 1850 and 1915 the production of men's clothes has increased more than ninefold, but between 1860 and 1915 –there are no figures for 1850 –the production of women's clothes increased more than sixty-five-fold In 1860 the industrial output of women's clothes was less than one-tenth that of men's clothes Women evidently wore chiefly garments made at home. In 1915 the American women were no longer dressed in home made clothes, for the industrial production of women's clothes had overtaken that of men's clothes. In 1850 the industrial production of bread and bakery products was quite insignificant The thrifty American housewives not only made their own clothes, but baked their own bread Since then the industrial production of bread, etc, has increased nearly fortyfold

The vast increase in the opulence of the American people and the change which the rapid increase of wealth has effected in the lives and habits of the people can be seen, furthermore, from the production of furniture, which between 1850 and 1915 has grown fifteenfold. Cigars and cigarettes have taken the place of the cheap and popular pipe. While the production of smoking tobacco has increased eight and a half-fold since 1860, that of cigars and cigarettes has grown no less than thirty-five-fold during the same period, and the value of cigars and cigarettes consumed is now double that of smoking tobacco. Since 1850 the production of confectionery has increased fifty-seven-fold and that of beer no less than seventy-eight-fold. Of course, in the middle of last century a good many American housewives not only baked their bread and made their own clothes, but brewed their husband's beer.

The facts and figures supplied in these pages prove that Great Britain is no longer the workshop of the world, that the American manufacturing industries, which, in 1850, were quite insignificant if compared with those of Great Britain, have advanced at so extraordinarily rapid a rate that their combined output is now three times as great as that of all the British industries, that Great Britain has lost her former manufacturing supremacy in all industries, except a few, and that the paramountcy even of these few has become exceedingly precarious. Naturally it will be asked: Why have the American manufacturing industries expanded so rapidly as to overtake, and to outpace completely, the old-established, powerful and wealthy industries of Great Britain?

The cause of America's wonderful industrial advance is not to be found in the great natural resources of the United States, for natural resources, however great, do not exploit themselves, but are exploited by men. The United States owe their industrial supremacy to the energetic activity of the American Government and people. America's manufacturing success is due mainly to two reasons: to the technical policy pursued by both employers and employed, and to the economic policy pursued by the American Government and people.

In the opening pages of this paper I have shown, by comparing the entire industrial production of the United

States and of Great Britain and the number of industrial workers employed in the two countries, that in 1907-1909 production per worker was approximately three times as great in the United States as in the United Kingdom. That fact seems so extraordinary and so incredible that it seems necessary to establish its correctness by a more detailed investigation. Unfortunately, the British and American industries have been differently classified in the Censuses of Production. Hence one has to rely for comparison on those industries for which comparable statistical data are available. In these comparable industries production per wage-earner was in 1907-1909 as follows (see p. 120):

The gross output per worker per year gives the value of the average worker's yearly production at wholesale prices. It includes, therefore, not only the value of his personal work, but also the value of the various materials used by him in manufacturing and the general expenses of the factory, such as rent, taxes, depreciation, etc. We can easily ascertain the net output of the workers by deducting from the value of their gross product the value of the materials which they have used in manufacturing and the general factory expenses, for which items data are furnished by the Censuses. The net output figures resulting from this reduction give the value of the work which the workers have actually done, as the cost of the raw materials used and the factory expenses have been eliminated. The cost of raw materials used in manufacturing and general factory expenses differ in the United States and Great Britain. Hence we can best ascertain the efficiency of production and of labour in the two countries by comparing the net output figures per worker.

A glance at the table given shows that both the gross and the net output per worker was very nearly three

	Gross Output per Worker per Year.		*Net Output per Worker per Week.*					
	United States in 1909.	*United Kingdom in 1907*	*United States in 1909.*			*United Kingdom in 1907.*		
	£	£	£	*s*	*d*	£	*s.*	*d.*
Boots and shoes ..	516	171	3	10	0	1	7	4
Cardboard boxes ..	275	106	2	15	0	1	0	0
Butter and cheese	2,979	1 310	8	3	0	2	8	1
Cement .. .	472	192	4	17	8	2	10	10
Clothing ..	484	158	4	7	4	1	3	11
Cocoa, chocolate and confectionery ..	662	296	4	18	5	1	12	3
Cotton goods ..	332	236	2	13	9	1	10	6
Clocks and watches	296	137	4	3	0	1	7	9
Cutlery and tools ..	323	164	4	1	6	1	8	1
Dyeing and finishing textiles ..	379	184	4	4	3	1	18	11
Gas works	897	422	11	16	7	4	1	1
Firearms and ammunition ..	464	152	4	9	2	2	2	8
Gloves .. .	416	233	3	10	9	1	11	2
Hats and caps .	414	149	4	1	10	1	5	10
Hosiery	309	184	2	2	8	1	3	5
Leather tanning and dressing . .	1,054	686	4	13	1	2	5	0
Lime	258	141	3	2	4	1	13	5
Brewing and malting	6,209	937	19	10	5	6	7	3
Matches .. .	1,729	408	7	3	1	1	13	0
Paint, colours, and varnish	4,012	1,375	12	9	3	3	16	2
Paper . ..	15,846	4,201	5	3	5	2	2	8
Pens and pencils ..	710	241	4	5	9	2	9	8
Printing and publishing	1,154	1,133	7	16	11	3	13	1
Railway vehicles ..	2 274	1,127	4	0	5	2	7	5
Silk goods .. .	989	608	3	9	3	1	1	2
Soap and candles ..	2,160	1,092	11	7	8	2	19	8
Average per head for all the industries enumerated	1,747	617	5	17	7	2	3	[illegible]

times as great in the United States as in Great Britain. The gross output per average worker per year for all the twenty-six industries enumerated was in 1907-1909 £1,747 in the United States and only £617 in Great Britain. The net output per worker per week for all these twenty-six industries was £5 17s. 7d. in the United States and only £2 3s 1d. in Great Britain. That is a tremendous difference which shows that the United States are far ahead of Great Britain in manufacturing efficiency. It shows that the American industries have overtaken the British not so much owing to the superiority of America's natural resources as owing to the superiority of American manufacturing methods

The table contains all the industries for which comparable data can be extracted from the British and American Censuses of Production It has not been compiled with the intention of making out a case, and it is to be regretted that some of the most efficient American industries, such as the iron and steel industries, the machinery trades, etc , had to be omitted Their inclusion would undoubtedly have considerably increased the superiority of the output of the average American worker over the output of the average British worker.

Wages depend obviously upon net output. In fact, they are paid out of net output. As the manufacturer has to find the money for the materials used and for the general expenses of his factory, the net output of his workers creates the fund which is divided between employer and employed It furnishes both the manufacturer's profits and the worker's wages. Before the War British labour leaders frequently asserted that the relative lowness of British wages was due to defective distribution, to the greed of the capitalists. The last column of the table establishes that before the War British wages were low because of the low value of net production per worker. As no factory can be run at a loss for a prolonged period, no worker can hope to earn in wages more than the net value of his work, and if the net value of his labour comes on an average only to about £2 per week, he cannot hope to earn more than that sum, even if the manufacturers should be willing to work without profits. Even the advent of the Socialist millennium cannot extract high wages out of a low net production per worker. Before the War American wages were on an average about three times as high as were British wages simply because actual net production per worker was about three times as great in the United States as in Great Britain. According to official records the following wages, were currently paid on May 1, 1914, in some representative occupations in Chicago where good average wages rule:

	Dols.	£	*s.*	*d.*
Baker's foreman, day work .. .	20	4	0	0
.. .. night work ..	22	4	8	0
.. secondhands, day work .	18	3	12	0
.. .. night work .	20	4	0	0
Bricklayers	33	6	12	0
Carpenters	28·60	5	14	5
Builder's labourers	17·60	3	10	5
Boiler-makers, manufacturing shops	21·60	4	6	5
.. outside	27·50	5	10	0
Moulders	24	4	16	0
Compositors, English . ..	24	4	16	0

The fact that before the War production per worker was on an average three times as great in the United States as in Great Britain is clearly established by the official figures given. It cannot be denied. However, as, generally speaking, the American workers work fewer hours per week than the British workers—there are, of course, some exceptions—the superiority of the American output per worker per hour is even greater than that shown by the figures, which relate to their output per year and per week.

Why was in 1907-1909 an American worker able to do as much work as three English workers engaged in the identical callings ?

A worker's output depends upon several factors Among these the following two are particularly important: the type of machinery used and the power by which that machinery is driven It is generally known that the United States are far ahead of Great Britain in the use of labour-saving machinery of the most perfect type. However, in addition to better machinery the American industries use far greater engine-power with which to keep their machines in motion. This may be seen from the following comparative figures

HORSE-POWER USED IN THE TWENTY-SIX TRADES PREVIOUSLY ENUMERATED

	No of Workers	*Horse-Power used.*	*Horse-Power per Thousand Workers.*
United States .	1,982,777	4,779,225	2,409
United Kingdom	1,699,572	2,009,354	1,182

The startling inferiority of England's industrial output per worker is due partly to the indifference to progress and to the conservatism of the employers, partly, and probably principally, to the hostility of the British trade unions to mechanical improvements and to their pernicious policy of restricting output by all means in their power. In organisation, and especially in mechanical efficiency, the British industries, which formerly stood first in the world, are now far behind their American competitors. Many competent American observers have pointed out to their countrymen the unwisdom of the policy of antagonising machinery and restricting output which has been pursued by the British trade unions, holding them up as a warning example. In the final Report of the American Industrial Commission of 1902 we read

> That the tendency of working-men is to restrict the output of their labour within more or less definite limits, which they have come to consider right and just, is undeniable. The trade unions of Great Britain, for instance, have always been relatively stronger than those of America, and at the same time the tendency to fix definite limitations to the performance of each workman has been stronger there. One standard contrast between industrial conditions in Great Britain and in the United States is the greater freedom of the American workman from restrictive rules. To it is often attributed, in a large degree, his greater activity and effectiveness. The alleged decline of British industry is often laid at the door of the unions, by reason of their limitation of the product of their members.
>
> . . . There can be little doubt that in the long run the interests of all classes will best be promoted by making the aggregate production of wealth as great as possible, so long as the workmen are not crowded beyond their strength. Certainly any general attempt to reduce the efficiency of American labour will check the progress of our industries, and will hamper us in competition with the other great producing nations. The high productivity of our industries at the present time is in part due to the superior methods and machinery used, but also in no small degree to the greater energy and skill of the American labourer. That high degree of energy and skill is the cause, at least in part, of the higher wages which American working-men usually receive.

The Report "Regulation and Restriction of Output," published by the United States Commissioner of Labour in 1904, stated:

Perhaps the most significant fact brought about by this investigation is the striking difference between . . Great Britain and the United States . . In Great Britain the justification of vested rights is avowed, and shows itself strongly in the dislike of capitalists to discard old and out-of-date machinery and methods of business, and in the obstacles placed by unionists in the way of machinery and division of labour which tend to eliminate their acquired skill.

One can readily understand how difficult it is to make any change whatever in the English engineering industry. Each party knows exactly what it is getting when working on traditional lines with traditional machinery and old methods The working-man is afraid that if any change, however slight, is made, his pay per unit of effort will be lowered On the other hand, the employer is afraid that any proposed change of whatever nature will result in friction and controversy with his workmen. He fears that, should he reorganise his shop with expensive and more modern machinery, his employees would either refuse to work the new machines, or, not being familiar with the power of the machinery, would demand a rate of pay which would more than absorb the profits from its use, or, suspecting that they were not getting a sufficient rate of pay on the machine, would restrict the output so as to make the venture unprofitable.

The Report on Cotton Manufactures, published by the United States Tariff Board in 1912, said:

In the case of plain looms (not automatic) the English weaver seldom tends more than four looms, while in this country a weaver rarely tends less than six, and more frequently eight, or even twelve, if equipped with "warp-stop motions" Furthermore, English manufacturers make little use of automatic looms, of which there were less than 6,000 in May, 1911, in the whole of England, while in the United States there are well over 200,000. It is estimated that there are now about 10,000 of these looms in use in England, and about 15,000 on the Continent. Where automatic looms can be used, a single weaver commonly tends twenty looms, and sometimes as many as twenty-eight. . . .

Several reasons are advanced for the delay in the more general adoption of the automatic loom in England. For one thing, the automatic loom costs about two and a half times the ordinary plain loom, and this has deterred many English mills already equipped with plain looms from adopting them . . . An additional reason for the limited use of the automatic looms appears to be the objection to them of the labour unions, which have been afraid that they would be used to displace labour and to throw more work on the weaver without proportionately increasing his earnings.

Professor Taussig of Harvard University wrote in his excellent book *Some Aspects of the Tariff Question*, published in 1915:

Whatever be one's sympathy with labour organisations, it is not to be denied that a well-entrenched union tends to oppose the introduction of labour-saving devices. This attitude is the inevitable consequence of the dependence of laborers on hire by capitalist employers. The first effect of a new machine or a better rearrangement is to displace some labourers or to lower their pay. Moreover, the belief in " making work " is too deep-rooted to permit the installation of improved processes without strong though silent opposition The mere existence of a powerful union—one not to be fought without heavy loss—has a benumbing influence, checking the very consideration of radical changes and tending to keep industry in its established grooves. Such was and is the influence of the strong organisation of the British iron-workers (the engineers); it led to struggles and strikes, in which the union, though sometimes beaten, retained a strong position. The American iron-makers, themselves men of overmastering temperament, and engaged in an industry where changes were rapid, shook loose from this sort of control. Beyond doubt, they were induced to adopt a drastic non-union policy by another circumstance: infraction of discipline by the union men and their

> opposition to discharge of the insubordinate and incompetent. . . . All in all, the defeat of the union movement served to make the iron industry more free and more vigorous, so far as concerns the advance of productive power and the cheapening of the products. . . .
>
> In the Welsh tinplate industry the union long encouraged, and the workmen maintained, the policy of restricting output, and they opposed labour-saving devices It would seem clear that the employers also, established as they had long been in apparently secure possession of the tinplate trade, fell into a certain stolid conservatism. Something like stagnation set in . . .
>
> Even for ordinary looms the English weavers oppose rearrangements and reductions in piece rates when improvements make it possible for a weaver to operate with the same effort and attention a larger number of looms Hence, as was noted a moment ago, the effectiveness of labour is less in England, even where power looms of the same general type as in the United States are used. This difficulty is accentuated by the attitude of the English weavers toward the automatic loom The weavers are afraid of the new device; it threatens to make employment less. They are not disposed to work the looms to their maximum output; they are loth to accept reduced piece-work rates, even though they can earn as much, even more. It is the familiar and almost inevitable disposition to "make work," the hostility to labour-saving appliances It may not take the form of overt and unqualified refusal, but it leads to a silent, stolid opposition. Against this the employer cannot make headway without friction and loss, especially when his power of discharge and his ability to insist on the full productivity of machinery are hampered by a strong labour union.

Mr F. W Taylor, the eminent American engineer, who is revolutionising industry by his methods of organisation based on the minutest time-study and motion study, wrote in his book *Shop-Management:*

> There is no question that the greater the daily output of the average individual in a trade, the greater will be

the average wages earned in the trade, and that in the long run turning out a large amount of work each day will give them higher wages, steadier and more work, instead of throwing them out of work. The worst thing that a labor union can do for its members in the long run is to limit the amount of work which they allow each workman to do in a day .

Forbidding their members to do more than a given amount of work in a day has been the greatest mistake made by the English trade unions. The whole of that country is suffering more or less from this error now. Their workmen are for this reason receiving lower wages than they might get, and in many cases the men, under the influence of this idea, have grown so slow that they would find it difficult to do a good day's work even if public opinion encouraged them in it . Any scheme which curtails the output should be recognised as a device for lowering wages in the long run.

Shortly before the War Mr. Taylor told me in a most interesting letter:

Years ago I arrived at the conclusion that under-production was the most serious problem which England had to face, and in my lectures in this country I have almost invariably spoken of this, pointing out the fact that the English people—including their political leaders and the leaders of the trade unions—were, as we put it, "barking up the wrong tree" in their effort to ameliorate the condition of the working-men.

No amount of readjustment of the joint reward of labour and capital can make the English working-men materially better off. Their only hope lies in an increase in individual output throughout the country.

I know case after case in England where they use exactly the same machines as in this country, but at far less horse-power and at far less speed than they should be run, and in a manner so as to turn out nothing like half the work that is being turned out in this country, and this is due, not to the lack of proper machinery but to the almost unalterable determination of every workman in

England to turn out as little work as possible each day in return for the money which he receives. This with the English workmen is almost a religion.

In 1882, when I was a foreman in the machine-shop of the Midvale Steel Company, I first became thoroughly convinced of this fact. At that time the steel business in this country was comparatively in its infancy, and it was impossible for us to get skilled American workmen to carry on the steel business. There was at that time quite a large English immigration of skilled steel-workers in this country, and we had to depend for some time upon these men to do our work. At that time there were no trade unions in the steel business to speak of in this country (at least, they were not powerful). In spite of this fact, however, I soon found that every English workman was doing everything in his power, first, to restrict his own output, and second, to induce every other workman around him to restrict output to the maximum possible extent.

After one or two years of unremitting, kindly effort, I found that it was absolutely impossible to persuade the English workmen that it was to their interest to turn out a *proper day's work*, or even to stop them in their campaign of persuading and bulldozing American workmen into adopting their theories as to the necessity for restricting output. As a result of this we were compelled, in our steelworks, to absolutely make it a rule never to employ English workmen. From this time forward, even with unskilled American stock, we were able to make extremely rapid progress. Our workmen had not yet been inoculated with this terribly pernicious fallacy that restriction of output was a necessity for the prosperity of the workman.

To illustrate the restriction of output, we had in our works a locomotive and car-wheel tyre rolling machine, which was bought from Tangye Brothers in England, and all the apparatus connected with this machine came from England. We had a splendid set of English workmen—that is, they were fine fellows, and were very skilled workers and personally not lazy or shiftless—to run this machine. And yet, after working at it for three or four years, they refused to turn out more than fifteen tyres per day. We called their attention over and over again to the fact that at this rate of production we were making no profit whatever, that it was absolutely necessary to increase the production of this machine All of our persuasion and all of our talk was of no avail whatever and we were finally obliged to discharge the whole lot of them, to get every man outside of the works, and ourselves to train in an entirely new and green set of American workmen, who had never seen a machine of this sort. Within three months after training them in, we had increased the output from fifteen to twenty-five tyres a day, and this output went on, right on the same machine, increasing, until, three or four years later, we had an output of 150 tyres a day.

The great obstacle which you have to overcome in England is not the unwillingness of the manufacturers to use modern machinery, but the unwillingness of your workmen to properly use modern machinery after it is installed.

Mr Samuel Gompers, the head of the United States Federation of Labour, stated on June 17, 1917, according to the *Observer* of July 8

We are not going to have the trouble here that Britain had with restriction of production There has not been any restriction of output for over thirty years in America. We in the United States have followed an entirely different policy. We say to the employers. "Bring in all the improved machinery and new tools that you can find. We will help to improve them still further, and we will get the utmost product out of them, but what we insist on is the limitation of the hours of labour for the individual to eight per day."

Even after the outbreak of War, when munitions, etc., were most urgently wanted, many British trade unions strove to continue limiting output in the traditional manner, partly by refusing to abandon their policy of "going slow," partly by opposing the admission of outsiders to their trades, of which they wished to preserve the monopoly. Their opposition to increasing production *to the utmost by speeding up production* by means of improved machinery, by allowing existing machinery to be run at full speed, etc., and their opposition to augmenting the number of workers by what is called "dilution," has continued in many directions up to the present day. For instance, *The Times* of April 17, 1918, contained a letter from an English shipping man, dated New York, which stated

> A great many new yards have come into existence on this side recently. . . . When these yards get into proper swing, they will no doubt turn out tonnage equal to the worst submarine sinkings. The question of unskilled labour does not affect the people on this side as it does in England, as, not being hampered by trade unionism, they can turn a man out a riveter, caulker, or any other branch of the trade within ten days. Practically everything is done with machinery, and hand-riveting is a thing of the past

While the British Labour leaders and workers have deliberately kept production low by opposing the introduction of the most perfect labour-saving machinery—a policy which, to some extent, was also pursued by those short-sighted and unprogressive manufacturers who wished to preserve the methods of their grandfathers—the American manufacturers and their workers have consistently striven to increase production to the utmost by using the most modern and the most powerful machinery and the most modern methods. The policy of high production has given very large wages to the indifferently organised workers in the United States, while the policy of limiting output has given wages one-third as high as American wages to the strongly organised members of the powerful British trade unions. The progressive American policy of high production, adopted by employers and employed alike, has enriched masters and men. The British policy of hostility to progress, the deliberate wasting of time and labour, has kept the workers poor, and it would ultimately have ruined the industries and the country. The War may have saved the situation, by waking up masters and men to their danger.

The abounding prosperity of the American manufacturing trades is due not only to the industrial policy of unceasing progress and of intensive production, pursued single-heartedly by the employers and their workers, but also to the economic policy adopted by the American Government and the American people While successive English Governments have discouraged production by favouring the policy of *laissez faire*, the policy of one-sided free imports, which is usually miscalled Free Trade, successive American Governments and the American people have encouraged their home industries to the utmost by the policy of Protection British Free Traders base, as a rule, their objection to Protection upon the argument that Protection creates general dearness, that it is a device for benefiting the rich at the cost of the poor, that it creates Trusts, that it causes industrial inefficiency, etc. These objections, which may be found in the text-books of British Political Economy, may appear correct in theory—unfortunately British Political Economy is mainly occupied in spinning economic theories while disregarding economic facts—but they are contradicted by the experience of the United States The ill-organised American workers receive under Protection wages which are about three times as high as are British wages, while the cost of living to the workers is only slightly higher in the United States than in Great Britain.

Trusts are not created by the tariff, but they have arisen because modern industry naturally tends towards aggregation and concentration, because production is cheapest when it is most efficient, and because it is, as a rule, most efficient when it is carried on on the largest possible scale. Then only can organisation and mechanical outfit be brought to the highest degree of perfection.

The fact that protected industries, and even tariff protected Trusts, do not necessarily raise prices against the consumers, but frequently lower them as much as possible in order to preserve their pre-eminence by superior cheapness based on efficiency, may be seen by the price-history of iron and petroleum in the United States, both of which are highly protected, and both of which are handled by the most powerful Trusts in the world, the United States Steel Corporation and the Standard Oil Trust During the last fifty years the prices of steel rails and of refined petroleum have been as follows:

Year.	*Price of Steel Rails per Ton*	*Price of Refined Petroleum per Gallon in New York.*
	Dols.	*Cents.*
1863	?	43¾
1873	120.58	18¼
1883	37.75	8⅛
1893	28.12	5.24
1903	28.00	8.62
1913	28.00	6.30

Steel rails and petroleum and the productions of many other tariff-protected industries organised in Trusts have become steadily cheaper. In many years American steel rails were cheaper than British steel rails. The argument that Protection makes commodities dear and creates Trusts which charge outrageous prices is clearly disproved by the American price movements.

The argument that Protection enervates industry, destroys enterprise, and encourages inefficiency in the protected trades is likewise disproved by the experience of the United States and by that of Germany. Professor Taussig of Harvard University, who for many years favoured Free Trade, wrote in his judicious and non-partisan book *Some Aspects of the Tariff Question*:

> It is certain that since the adoption of the protective system by the German Empire in 1879 there has been an extraordinary advance in all the technique and organisation of manufacturing industry In general it is as certain in the case of the United States as in that of Germany that the march of technical improvement has been extraordinarily rapid during the period of the maintenance of a high protective system All the general indications from the economic history of the United States are that protective duties in the great majority of cases have not served to bolster up antiquated establishments or to retard improvements.

It is a significant fact that before the War industries were most efficient in the highly protected United States and in Germany, and exceedingly inefficient in Free Trade Great Britain. That fact should give food for thought to the champions of Free Trade.

Protective tariffs undoubtedly encourage industry, and as prosperous, powerful and progressive industries tend towards concentration, it may perhaps be said that Protection favours manufacturing on the largest scale and therefore favours Trusts. However, it is better for a nation and its workers to be highly prosperous and to complain about Trusts, as many Americans do, than to suffer from stagnant, declining and decaying industries and to rejoice at the absence of Trusts. After all, the Trust is the most perfect form of individual organisation, and the abuse of its power can, and ought to, be controlled by the Government. It is worth pointing out that in England, as in the United States, the most successful industries are carried on by huge Trusts, such as the Coats Thread Combination and the all-embracing Imperial Tobacco Company.

Protection reserves the home market to the national industries, gives them a considerable measure of security, and therefore favours industrial enterprise, especially on a large scale. While the policy of Free Trade has caused British industries to develop spasmodically, and has caused British manufacturing to be carried on inefficiently and wastefully in numerous small and medium-sized factories, the policy of giving security to the domestic industries adopted by the United States has favoured the concentration of the American industries and the rise of gigantic undertakings. The superior efficiency of enterprises carried on on the largest scale may be seen from the following figures extracted from the American Censuses of Production:

PRODUCTION OF INDUSTRIAL ESTABLISHMENTS HAVING A YEARLY OUTPUT OF $1,000,000 AND MORE.

Year.	*No. of Wage-Earners Employed.*	*Percentage of All Workers.*	*Value of Productions.*	*Percentage of All Industrial Production.*
		Per Cent.	*Dols.*	*Per Cent.*
1904 ..	1,400,453	25·6	5,628,456,171	38·0
1909 ..	2,015,629	30·5	9,053,580,393	43·8
1914 ..	2,476,006	35·2	11,794,060,929	48·6

These figures are intensely interesting and extraordinarily important. In 1914 the largest industrial undertakings of the United States had together an output of £2,354,812,186, which was considerably larger than that of all the industries of the United Kingdom combined.

These large undertakings more than doubled their output during the decade 1904-1914. The most remarkable *fact, however, is that whereas the giant concerns employed* only 35·2 per cent. of all the industrial workers, they produced no less than 48·6 per cent of all the goods made in the United States, while the American industrial establishments of a smaller type employed 64·8 per cent. of the workers and produced with them only 51·4 per cent of all the industrial goods made These figures summarise in the briefest manner and prove absolutely the superior efficiency of production on the largest scale over production on a medium, or a small scale. America's greatest industrial triumphs have been won by its most gigantic undertakings The United States Steel Corporation produces every year more iron and steel than the whole of the United Kingdom. The Ford Automobile Works turn out every year more motor-cars than the whole of the United Kingdom, and some of the most efficient American railways system have each a mileage equalling, or exceeding, the railway mileage of the whole of Great Britain.

The facts and figures given in those pages prove that the American manufacturing industries owe their supremacy, not to the great natural resources of the country, as is often asserted, but to the wisdom and energy of the American people and their Government. They owe their industrial predominance mainly to the following causes: To the employment of the most perfect and the most powerful machinery; to their manufacturing on the largest possible scale in giant undertakings; to the policy of increasing production to the utmost which is pursued single-heartedly by masters and workers; and to the policy of encouragement and Protection pursued by successive American Governments.

The causes of America's industrial pre-eminence were well summarised as follows in the final Report of the United States Industrial Commission of 1902:

> *The following propositions are obviously true:*
>
> 1. The more completely the labouring population of the world, and that smaller population engaged in combining brain and muscle in production, are kept employed, the wealthier the world and the more rapid its advance, provided wastes are kept down to a minimum.
> 2. The smaller the number of non-producers among adults, the larger is the production, the more efficient the population as wealth-producers, and the most rapid its progress in wealth production and accumulation.
> 3. The more generally and effectively the manual labour of the world is aided and directed by brain, the higher is its efficiency.
> 4. The more generally machinery, and especially automatic machinery, can be made to re-enforce producers and distributers of wealth, the higher is the efficiency of wealth production . . .
>
> The fundamental elements of efficiency in industrial production, in the United States as in any country, are perhaps summed up as—
>
> 1. The character of the people, as given form by race, environment, and especially by social and political influences.
> 2. The physical condition of the people, as determined by their food, their habits of life, and exercise.
> 3. The skill and efficiency of the people as tool-users.
> 4. The quantity and productivity of tools, as determined by design and construction, and by combination of the man and the machine under all the preceding conditions.
> 5. The effective organisation of business for economising all productive and distributive forces.
>
> Given a people of constitutional vigour and intelligence, with a talent for invention and construction, with political freedom and without social caste control, with a good system of education of mind and of hand, with abundance of wholesome food and a working day of proper length, with vocation and general opportunity free to all, and

they will soon acquire tools and machinery, and skill in their use, and will promptly attain ability to promote their own elevation in maximum degree in minimum time. These conditions are probably at the moment illustrated in larger measure in the industrial system of the United States than in any other nation, though progress toward their fulfilment is rapid over all the civilised world

While the system of the successful American manufacturer and his labour-assisting machinery are also largely available to his foreign competitor, and are, in fact, sometimes employed, the fundamental fact in the difference between our industry and that of other countries seems to be (as testified, for example, by Mr Harrah, of the Midvale Steel Works) the difference between men and the races of men. The conservatism of Great Britain and the comparative lack of ambition, and in some cases of education, in other European countries, and, above all, their lack of freedom, social as well as political, often prevents them from availing themselves of known and approved methods, tools, and machinery The American manufacturer thus finds it possible in many branches of business to compete successfully abroad with all nationalities, despite their lower wages, and to build up at home the most advanced civilisation

It is possible, as more fully pointed out elsewhere, that the shorter and better-arranged workday of this country may have much to do with the maintained energy, alertness, and ambition of the American working-man, and thus may be an important factor in his remarkable supremacy in productive power and in excellence of products. The effect of this productivity of American labor, and of the better conditions of life coming from lessened hours of labour and from larger returns, is illustrated in a very impressive manner by the growth of the people in size and in their improved physical proportions. The development of American women in height and in increased vitality is a matter of common remark. Such are vital and social gains through improved methods of industry and general employment of labour assisting machinery.

The weighty view of the American Industrial Commission should be made known to every British manufacturer and every British Labour leader and politician.

In industry as in war success is won not by those nations which possess the largest territory and the greatest latent resources, but by those which are best equipped, best organised and best directed. Science has abolished distance. Competition has become international, has become world-wide Hence an industrial State which follows the policy of drift, of *laissez faire*, which entrusts the guidance of its industrial policy to doctrinaires and party politicians, and which deliberately discards the idea of national organisation and nation-wide co-operation, finds itself at the greatest disadvantage in competing with highly organised industrial nations directed by the best experts

It has become generally recognised in Great Britain that industrial anarchy must be replaced by regulated national effort; that the State must harmonise and direct all the economic energies of the people. Men only differ as to whether the national industries should be guided and controlled by politicians or by bureaucrats or by experts.

Good leaders make good followers Success in industry, as in war, depends chiefly upon good leadership As in technical matters the expert is superior to the amateur, it is obvious that Britain's economic policy should no longer be determined by uncontrolled politicians who are mainly bent upon gaining votes. The organised representatives of business should make their influence felt in Parliament as they do in the United States. They should demand that the great economic interests of the nation should no longer be sacrificed to party political considerations and to the interests of importers and middlemen. They should insist upon the adoption of an economic policy favouring production, and they should demand that the great Departments of State which control the national business should be organised in a businesslike manner, and be presided over, not by eminent politicians, but by the ablest business men.

Many abstract thinkers, political agitators, poets, novelists and visionaries unacquainted with the realities of business have urged that as economic individualism has proved a failure, it should be replaced by Socialism. Ideal Socialism does not deign to consider practical questions It dreams of the Millennium Its recommendations need, therefore, scarcely be considered. Practical Socialism means bureaucratic control, means control by salaried officials. The principle of successful industry is progress, is constant change and innovation. The principle of bureaucracy is conservatism, is the punctilious observance of, and the rigid adherence to, established rules and regulations is hostility to change and therefore of progress In business matters experience is more precious than imagination If Great Britain wishes to recreate her industries she should rely for guidance neither on party politicians nor on visionaries, but on experts, on business men As the productive industries are far more important as creators of wealth than is commerce, and as the manufacturing industries are England's principal resource, the nation should rely for guidance in economic matters not on bankers, financiers, company promoters, stockbrokers, merchants, railway directors, and other non-producers who have dominated Parliament for a long time, but on the representatives of the productive industries which create the nation's solid wealth. England should follow no longer a middleman's policy, nor a foreign trade policy, nor a cotton policy, but a producer's policy in the fullest sense of the word. She should no longer pursue a short-sighted sectional policy which benefits a clamorous or influential part of the community at the cost of all the others, but a broad national policy which fosters alike all the productive industries without neglecting trade, commerce and finance.

I have shown in these pages by means of the best official statistics available that before the War the American industrial worker produced on an average approximately three times as much goods, as much wealth, as the British industrial worker; that American wages were approximately three times as high as British wages It follows that England can treble her production, her income and her wealth; that the British manufacturers can treble their profits and their workers can treble their wages by bringing British industrial efficiency up to the level of American industrial efficiency. Commerce, trade and banking would naturally benefit commensurately from such trebling of output, wealth and national income.

In the United States not all industrial undertakings are efficient Some are extremely efficient and some are very inefficient In the most efficient American factories production per man is about twice as great as it is in the case of the average American factory. It follows that England is able not merely to treble her income and wealth, but to sextuple her wealth and income by applying to her industries the best methods available, by bringing her industrial establishments up to the level of the best-equipped and best-managed American undertakings. Great Britain can easily pay for the War, however long it may last and however costly it may be, by Americanising her industries. Such a change would vastly benefit manufacturers and workers and the nation as a whole. However, all efforts at reforming the British industries will prove vain unless the workers abandon the suicidal policy of restricting output and antagonising improved machinery and improved methods. The ancient guilds destroyed the industries which they were intended to promote by their policy of opposing progress and restricting output, by endeavouring to create an artificial monopoly of labour and an artificial scarcity of goods for the benefit of their members. The policy of the British trade unions may have similar consequences. Let us *hope that it will be abandoned. The reform of the British industries* can be carried out only with the cordial co-operation of the workers.

CHAPTER VI

EDUCATION AND ECONOMIC SUCCESS*

> It is certain that henceforth the most powerful nation will be, not that which possesses the most extensive territory, nor that which has the largest population, but that which is the most industrious, the most skilful, the best educated, the most capable of utilising all the means and forces which science can place at man's disposal, and which enable him to triumph over matter. The greatest producer among nations may become the foremost power in the world. *Report of French Commission on Technical Education of* 1863.

THE advance of nations in prosperity and power depends partly on the natural resources which they possess, partly on the activity and ability of the people who exploit them. The abilities of men are either inborn or acquired. Some people, such as the Greeks, Armenians, Jews and Chinese, are supposed to possess unusual natural gifts for commerce, exactly as the Czechs and gipsies are supposed to have an inborn talent for music, the Japanese a natural gift for the arts and handicrafts, etc. Nevertheless, we find that the greatest economic success has fallen, not to the nations which are naturally most gifted for trade, but to the perhaps less gifted, but best-educated nations which excel the more gifted ones in music and all other arts as well. It seems, therefore, that acquired ability is at least as valuable as inborn ability. With the rapid advance of science applied to commerce and industry, the importance of education, of scientific training, becomes, of course, greater and greater. Natural ability alone is becoming of secondary importance in a world of highly trained specialists. After all, the naturally most able men, wrestlers, boxers, singers, painters, etc., arrive at the highest degree of perfection only by long-continued training, exactly as do the best-bred and best-endowed race-horses and bloodhounds

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* From *The Fortnightly Review*, August and September, 1918.

Natural talent, unassisted by school education, may create most successful men of business and inventors, such as Rockefeller, Carnegie and Edison These men were not school-taught They educated themselves. However, it is worth noting that many of the great self-taught men have in after-life expressed keen regret at their lack of education, and some of them are so strongly convinced of its advantage that they have devoted countless millions to educational purposes, as have Rockefeller, Carnegie and other most successful American business men

Education may be either ornamental or practical. Unfortunately, British education has been rather the former than the latter It has been an education which has been designed by clergymen and classical scholars for the use of a leisured class which possesses ample fixed incomes, and which therefore needs no preparation for the struggle of life English education has rather developed culture, character and manners than the practical abilities. We live in a world of keen competition. The principal aim of the school should be to supply the growing generation with useful knowledge, to sharpen its intelligence, and to teach the young to think correctly and, before all, to work conscientiously, and to love work. Cramming, as practised in England and in other countries as well, may possibly develop the memory, but is destructive of the critical faculty. It deadens the intelligence. Besides, at the English High Schools and Universities—but not so much at the Scotch —the students learn chiefly how to idle more or less gracefully and to toy with work. To take a keen interest in one's work, to discuss one's studies, to live for one's work, is "bad form" in England. In the United States and in Germany study is taken far more seriously The difference between education in England and education in Germany and the United States is very striking. The advance of nations depends largely on the spirit which education in the widest sense of the word has raised among them The rapid economic advance of the United States and of Germany and the relative stagnation of the British industries must be largely attributed to educational causes Men who have received a gentleman's education, who have acquired the spirit and the manners of the leisured class, will be beaten in the race for success by men who love work and who have developed their abilities to the highest point.

The defects of English education—especially its obsoleteness and its contempt of the useful and the necessary—have brought it into disrepute with practical men. After all, education should prepare men and women for their future tasks The Report of the United States Industrial Commission of 1902 stated correctly

> Only a very small fraction of the people feel able to pursue a purely literary and liberal course of culture beyond the years of childhood. Any education that is to attract the mass of the people after these years are passed must have a direct and evident bearing upon the activities of adult life

Education may be either autocratic or democratic in character. English educationalists have hitherto, and I believe mistakenly, studied almost exclusively the educational system of autocratic Germany, and have endeavoured to organise British education upon the German model. Hitherto American education has enjoyed little prestige abroad, largely because the United States *possess a considerable number of people unable to write* or read, while Germany possesses practically none. Yet the mere fact of America's success in many directions in which trained ability of the highest kind is required might have convinced educationalists that the American educative system must be a most powerful engine for good. It is true a large number of Americans can neither read nor write. This is, after all, not unnatural. In a country which in part is sparsely settled and where distances are enormous the creation of schools for all is exceedingly difficult, and in view of the independence of the American character it is impossible to compel every child to go to school, as is done in Germany. Moreover, the large majority of American analphabets is furnished by negroes whose fathers were slaves and by immigrants from the illiterate South and East of Europe. In 1910 there were, according to the Census, in the United States 5,516,163 illiterates aged ten years or over. Of these, 2,227,731 were negroes, 1,650,361 were foreign-born whites, 151 388 were whites of foreign or mixed parentage, and only 1,378 884 were native-born whites of native parentage. The great majority of the latter were "mean whites" living among the negroes in the South. Only those disparage American education who are neither acquainted with its difficulties nor with its achievements.

The practical success of the United States has been as striking as that of Germany. It is largely due to the educational system of the Great Republic. Let us, then, see what we may learn from America's example and experience.

Education may be disseminated by the schools which train the young and by other agencies which instruct and lead the grown-up people in after-years. The latter is at least as important as the former. Both branches of the education will be considered in the following pages.

The Puritans who founded the American colonies were keenly interested in national education. The Americans were among the best-read and the best-educated nations since the beginning of their history. Education has always been far more advanced in the United States than in England. The fathers of the Republic believed that only a well-informed and well-educated nation could be happy, prosperous and free, and they acted in accordance with that conviction. From the earliest days the expenditure of the Americans on education has been prodigious, and it has been increasing constantly and more and more rapidly ever since. Of late years the progress of America's education has been absolutely gigantic. According to some America has become education-mad. The recent expansion of American education may in part be gauged from the following most interesting figures

PROGRESS OF AMERICAN PUBLIC SCHOOLS.

Year.	*Population Five to Eighteen Years Old*	*Average Daily School Attendance*	*Students in Universities, College, and Schools of Technology.*	*Total Educational Expenditure.*
				Dols.
1871 ..	12,305,600	4,545,317	(1873) 23,392	69,107,612
1876 ..	13,708,000	5,291,376	32,540	83,082,578
1881 ..	15,379,290	6,145,932	39,048	83,642,964
1886 ..	17,122,060	7,526,351	40,421	113,322,545
1891 ..	18,897,076	8,408,323	58,405	147,494,809
1896 ..	20,863,807	9,781,475	86,864	183,498,965
1901 ..	21,982,797	10,714,613	103,351	227,465,664
1906 ..	23,792,723	11,712,300	129,181	307,765,659
1911 ..	24,745,562	12,871,980	183,572	446,726,929
1915 ..	26,425,100	14,964,886	237,011	605,460,785

While between 1871 and 1915 the number of the people between the ages of five and eighteen has a little more than doubled, the average daily attendance at the schools has considerably more than trebled. In 1871 the average daily attendance amounted only to 36 9 per cent of the people bewteen the ages of five and eighteen, but by 1915 it had grown to 56 6 per cent.

General education has spread considerably in the United States, but higher education has increased at a most extraordinary and almost incredible rate. Between 1873 and 1915, while the population of school age has a little more than doubled, the number of students at the American Universities, colleges and schools of technology has increased more than tenfold During the nine years from 1906 to 1915 the number of American High School students has almost doubled It is also worth noting that between 1871 and 1915 the expenditure of the public schools has increased nearly ninefold, and that during the short space during 1906 and 1915 school expenditure has almost doubled

The figures given in the table apply only to the daily average attendance at the public schools and to the expenditure of these establishments The figures relating to the number of scholars enrolled at the various schools, both public and private, and to the expenditure of the public and private schools combined, are, of course, larger. The Report of the United States Commissioner of Education for 1914 stated

> In round numbers there were 22,000,000 persons enrolled in educational establishments in the United States in 1914. . . The teachers for this educational army numbered 700,000, of whom 566 000 were in public schools . The cost of education for the year, as nearly as can be estimated, was $759,000,000. This three-quarters of a billion is a relatively small amount when compared with other items in the public expense.

In 1914 the United States spent on education twice as much as the United Kingdom spent before the War on its Army and Navy combined. In 1914 the United States spent almost exactly as much on education as the United Kingdom spent before the War under the Budget on its Army, its Navy, its whole Civil Service, on Old Age Pensions, Public Education, National Insurance and Labour Exchanges, and the interest and sinking fund of the National Debt combined Yet the American Commissioner of Education described that gigantic expenditure as being "relatively small"[1] As I said before, the Americans have become education-mad However, that is a very healthy form of insanity

As the progress of nations depends rather on the trained ability of its leaders than on that of the rank and file, a good higher education is particularly important, for it furnishes able scientists, engineers, chemists, organisers, administrators and other experts whose activity determines the fate of nations The Americans have promoted higher education in all its branches with the utmost enthusiasm and energy. That may be seen by the fact that between 1873 and 1915 the attendance at the Universities and other High Schools has increased more than tenfold, and by other indications as well The growth of the American Universities and of the other High Schools has been greatly promoted by the wealthy citizens, and especially by the "captains of industry," by the great self-made men who, having lacked a proper education, value it most highly An ever-growing stream of gifts is flowing towards the educational establishments of the United States. How vast and how regular these gifts are and how rapidly they are increasing may be seen from the following figures supplied by the United States Commissioner of Education:

GIFTS AND BEQUESTS TO EDUCATION.

	Dols		*Dols.*
In 1874	6,053,804	In 1904	17,261,375
In 1875	4,126,562	In 1905	21,827,875
In 1876	4,691,845	In 1906	23,347,070
In 1877	3,015,256	In 1907	28,585,780
In 1878	3,103,289	In 1908	19,763,421
In 1879	5,249,810	In 1909	21,192,450
In 1880	5,518,501	In 1910	24,755,663
In 1881	7,440,224	In 1911	27,634,029
In 1882	?	In 1912	30,061,310
In 1883	7,141,363	In 1913	29,651,879
In 1884	11,270,286	In 1914	31,357,398

Between 1871 and 1914, $584,418,082, or nearly £120,000,000, were thus given to the American schools. Whereas wealthy Englishmen give and bequeath money most freely to charities, hospitals, churches and missionary enterprises, endeavouring to help those who are already broken, wealthy Americans strive to elevate the nation to enrich the people and to prevent man from becoming poor and diseased, by promoting their education and by making them useful citizens. Of the money given or bequeathed to education the bulk goes to the High Schools, and serves to create leaders of men who are the most valuable citizens of the State. The gifts and bequests devoted to education in 1914 were distributed as follows:

	Dols.
To Universities and Colleges	26,670,017
To Schools of Theology	1,558,281
To Schools of Medicine	1,495,773
To Schools of Law	203,067
To Normal Schools	723,714
To Private High Schools	706,546
	31,357,398

Care of the body is more immediately necessary than care of the soul. It will be noticed that the funds given to schools of theology are extremely small.

Among the greatest benefactors to education were Rockefeller and Carnegie, two men who, almost without education, began life in the humblest circumstances. How greatly these two men prize education may be seen from the following list of their gifts for educational purposes, which is probably incomplete, and which has been extracted from Koester's book, *The Price of Inefficiency*, New York, 1913.

ROCKEFELLER'S GIFTS

	Dols.
General Education Fund	53,000,000
University of Chicago	23,309,000
Institute of Medical Research	8,240,000
Rush Medical College	6,000,000
Barnard College	1,375,000
Yale University	1,300,000
Harvard University	1,000,000
South Education Fund	1,125,000
Small colleges in United States	23,000,000
	118,349,000

CARNEGIE'S GIFTS

	Dols.
Carnegie Institute, Pittsburg (Research)	16,000,000
Carnegie Institute, Washington	25,000,000
Scotch Universities	10,000,000
Polytechnic School, Pittsburg	2,000,000
Small colleges in United States	20,000,000
Carnegie Corporation of New York (Research and Education)	25,000,000
Libraries	52,000,000
	150,000,000

Owing to the generosity of their numerous wealthy patrons, the American Universities and other High Schools are magnificently furnished with all conveniences, and the most perfect and most costly scientific apparatus. Their property was officially classified and valued in 1914 as follows:

PROPERTIES OF UNIVERSITIES, COLLEGES AND TECHNOLOGICAL SCHOOLS IN 1914

	Dols.
Value of ground . .	87,757,360
Value of buildings .. .	281,665,426
Value of furniture, books and apparatus	70,113,586
Productive funds	362,742,823
	802,279,195

The American students study under the best possible conditions. The vastness of the capital invested in the Universities, etc., enables us to gauge the excellence of their accommodation and of their scientific appliances.

All the leading Universities and schools possess vast funds, owing to the munificence of opulent Americans. How vast they are may be seen from the following figures:

ENDOWMENT FUNDS IN 1914

	Dols.
Columbia University .	30,770,868
Leland Stanford University ..	23,961,338
Harvard University . .	21,912,853
Chicago University .	18,598,273
Yale University .. .	15,379,363
Cornell University . .	14,145,873
Rice Institute .	10,000,000
Carnegie Institute .	8,000,000
Johns Hopkins .. .	6,265,480
Washington University	6,156,223
Pennsylvania University	5,206,308
Princeton	5,194,861

In 1914 the yearly income of some of the best-known Universities was as follows:

	Dols.
Cornell University	6,790,260
Columbia University ..	6,686,869
Harvard University .	4,287,185
Wisconsin University	3,101,372
Minnesota University	3,033,891

	Dols.
Illinois University	2,824,053
Yale University	2,600,629
California University	2,499,457
Pennsylvania University	1,679,809
Washington University . ..	1,627,499

Universities which possess such gigantic funds and such huge yearly incomes are naturally provided in a most lavish manner with the best of everything. Notwithstanding their comparatively recent creation, American Universities have excellent libraries. In 1914 Harvard had 1 083.750 volumes, Yale 1,000,000 volumes, Columbia 550,429 volumes, Cornell 439.517 volumes, Chicago 431,362 volumes, Pennsylvania 421,097 volumes, etc. Altogether the American Universities possessed 18 199.354 volumes in that year

The United States are the country of mammoth undertakings of every kind However, the American Universities deserve admiration not only because of the great and rapidly increasing number of their students, because of the vastness of their financial resources and the excellence of their mechanical apparatus, but also because of their success in training large numbers of able men and women, and in promoting science and research. The American Universities are ahead of the European Universities in some subjects, such as engineering, law, dentistry, etc , but they lag behind in others, such as medicine. However, their shortcomings are being remedied with rapidity and energy.

Of course, the numerous Universities vary in efficiency. Some of the Eastern institutions have arrived at maturity, and need not fear comparison with any of the most famous institutions of Europe. On the other hand, some of the young Universities in the West and South suffer from lack of students, lack of eminent teachers, and lack of means, a condition which is only natural in a new country which is overstocked with Universities and colleges. After all, too many schools is better than too few.

The great efficiency of the fully developed University is largely ascribable to their organisation. The American people believe in one-man Government and in youth. Exactly as the executive power of the Great Republic is vested, not in a jointly responsible Cabinet, but in a single man, the President, who is possessed of almost regal power and authority, the direction of the Universities is entrusted, not to a committee of professors, as in Europe, but to a President who nominally carries out the decisions of the Trustees, but who in reality is the supreme head. Presidents can make or mar a University. Professor Eliot of Harvard University became President of that institution in 1869 at the early age of thirty-five, and he has directed it during forty years. The premier University, and the Universities in general, owe much to President Eliot, who has completely reformed American University teaching.

It is often asserted, and it is widely believed, that in the land of the almighty dollar money governs everything, that idealism is non-existent. That assertion is disproved by the fact that many of the ablest Americans, who could earn large incomes in private employment, have devoted their life to science or to administration, although the United States pay totally inadequate salaries to professors and to high Government officials. As a rule, full professors receive a salary of from $3,000 to $5,000 per year, assistant professors are given from $1,800 to $3,000 per year, and University instructors are paid from $1,000 to $2,000 per year. The salaries of the great experts employed in the Government service are similarly low. In view of the high level of general earnings—a bricklayer can earn as much as a University professor—and the high standard of living in the United States, the professorial salaries paid are extremely unsatisfactory. Professors and high officials live in poverty unless they possess private means. The fact that, nevertheless, some of the most eminent American engineers, chemists, lawyers, patent specialists, etc., may be found at the Universities and in Government offices is an eloquent proof of American idealism and of American devotion to science.

The American University professors suffer not only from insufficiency of remuneration, but also from insecurity of tenure. As a rule instructors are engaged by the year, assistant professors for three years, and full professors "during good behaviour" or "at the pleasure of the Trustees," in the terms of their contract. Life professorships with pensions after retirement on the European model are practically unknown. Hence professors cannot consider their position as a sinecure, as do so many European professors, but have to justify their existence by constant progress and useful activity. If they fail to keep abreast of the times, they may lose their position and their income.

The development of the Universities proper has been tremendous, but that of the agricultural and mechanical colleges has been even more extraordinary. By an Act of Congress of July 2, 1862, passed in the midst of the Civil War, Federal Land Grants were made for the endowment of agricultural and mechanical colleges. These institutions were rapidly established in all the States and territories of the Union. They were intended to supply in the first place useful practical knowledge to those engaged in agriculture, engineering, manufacturing and the handicrafts, but they have gradually increased their scope to such an extent that some of them are emulating the Universities. The incredibly rapid development of these institutions during recent years may be seen from the following table:

AGRICULTURAL AND MECHANICAL COLLEGES.

Year	*Yearly Income.*	*Number of Students.*	*Value of Farms*	*Value of All Property.*
	Dols.		*Dols*	*Dols.*
1892 ..	4,033,833	13,786	2,776,462	7,012,106
1895 ..	4,179,662	15,973	1,630,287	9 711,975
1898 ..	5,999,916	20,974	2,580,799	20,305,675
1901 ..	7,325,604	29,950	4,540,014	68,084,925
1904 ..	10,885,550	37,135	6,350,992	76,564,424
1907 ..	14,492,884	42,424	11,055,845	97,446,701
1910 ..	20,890,610	60,625	21,070,151	117,843,129
1914 ..	34,891,224	69,132	23,981,085	160,298,353

Between 1892 and 1914 the number of students at the agricultural and mechanical colleges has increased five-fold. The yearly income and the value of the demonstration farms of these institutions has increased nearly nine-fold, and the value of all their property nearly twenty-three-fold. In 1914 their property was officially classified as follows:

	Dols.
Value of farms and grounds	23,981,085
,, buildings	51,825,766
,, apparatus and machinery ..	16,842,273
,, libraries .. .	5,996,787
,, live stock .. .	1,686,282
Land Grant Funds	18,010,398
Other permanent funds . .	28,055,615
Total	160,298,353

The agricultural and mechanical colleges are the Universities of the people in the backwoods, are the High Schools of the poor. By their practical instruction they have vastly benefited the people

In addition to the agricultural and mechanical colleges, the United States possess hundreds of institutions of every kind which provide High School tuition in all the arts and sciences. They cater for general students and for specialists, but they are too numerous and too varied to describe At any rate men and women desirous of self-improvement, of earnest study, of scientific research, can find suitable institutions in every part of the Union.

The United States owe undoubtedly much of their progress to the ability of their leaders The high ability displayed by American scientists, architects, engineers, chemists, etc., is largely due to the excellence of their educational system, and, before all, to the fact that education has been so lavishly endowed by the Federal Government, the individual States, the cities and towns, and by wealthy individuals, that opportunities to acquire knowledge from the best experts and to rise to the highest positions in life have been brought to the door of the humblest dwellings. In the United States the best education is not exclusive It is not reserved to the select few The highest and the most thorough education is not the privilege of a narrow class, but has been brought within the reach of all, even of the poorest. Talent is not starved for lack of opportunity The Americans have adopted Napoleon's motto, "La carrière ouverte aux talents" The ability of America's leaders in the economic field is so great because the leaders are selected, not from a small number of privileged individuals, but from the whole body of a great nation Lord Bryce wrote in his excellent work *The American Commonwealth*:

> It is the glory of the American Universities, as of those of Scotland and Germany, to be freely accessible to all classes of the people. . . .
>
> In every civilised country the march of scientific discovery has led to an enormous increase in the applications

> of science to productive industry. This has been followed by a demand for men conversant with these applications, and to supply that demand the teaching of applied science has been provided on a scale undreamed of even a generation ago. Nowhere, perhaps not even in Germany, has this movement gone so fast or so far as in the United States. While the existing Universities have been enlarged by the addition of scientific departments, a host of independent or affiliated scientific schools and technical institutes have sprung up. Most of these have been planted in the cities, but the agricultural colleges, perhaps the most numerous class, are often placed in rural areas. Of these latter, many are really secondary schools, or are teaching engineering quite as much as agriculture, but some of the best have experimental farms attached to them . . .
>
> One who surveys the progress of the United States during the last fifteen or twenty years finds nothing more significant than the growth of the Universities in number, in wealth, and in the increased attendance of students from all ranks of life. They have become national and popular in a sense never attained before in any country . . .
>
> The Universities and colleges have, taken as a whole, rendered an immense service. They have brought instruction within the reach of every boy and girl of every class. They receive a larger proportion of the youthful population than do any similar institutions in any other country. They are resorted to hardly less by those who mean to tread the paths of commerce or industry than by those who prepare themselves for a learned profession. They have turned a University course from being the luxury which it has been in the Old World into being almost a necessary of life. And they have so expanded their educational scheme as to provide (in the larger institutions) instruction in almost every subject in which men and women are likely to ask for it.

Guitteau wrote in his book *Government and Politics in the United States:*

> From the first century A.D. down to the very beginning of the nineteenth century, education was almost universally

controlled by the Church, and was confined to the wealthier classes; while to-day education is generally recognised as a function of the State, and its benefits are freely offered to all children, the expense being borne by the community. Nowhere has this modern conception of free public education been more fully realised than in the United States.

Progressive and open-minded men never cease learning. The acquisition of knowledge comes to an end only with the grave. Education in the widest sense of the word does not end with the school and University. Mature men may be taught by instruction suitably given and by example. American statesmen, discarding disdainfully the doctrines of *laissez faire*, have striven to foster the national industries, not only by a protective tariff, but by all other available means as well, and they have endeavoured particularly to increase the economic efficiency of the people both by the tuition of grown-up individuals and by example.

The great characteristics of American education, as given at the schools, colleges and Universities, are two: prodigal lavishness and great practical efficiency. These two characteristics are to be found also in the education which the American Government supplies to its mature citizens.

The great Government departments of the Union and of the individual States composing it, exist not only for the purpose of administration, but for that of education as well. The greatest and the most important educational centre of the United States is situated, not in New York or in Boston, not in Chicago or in Philadelphia, but in Washington, the Federal Capital. In 1917 Professor Caullery of the Sorbonne, a French Exchange professor, who lectured at Harvard in 1916, published a little book, *Les Universités et la Vie Scientifique aux États-Unis.*

The longest chapter contained in it describes the scientific Government departments at Washington In that chapter we read

> The Federal Government controls only a small portion of the national life, because of the sovereignty possessed by the individual States. Nevertheless, it has been able to create some institutions which are far more important than similar institutions which may be found elsewhere. Among these the Scientific Departments attached to the different branches of the Administration are particularly remarkable. During the last half century the practical value of science has been fully realised by the Americans, and they have devoted to science ever-increasing amounts for the good of the country
>
> Washington, the seat of the Federal Government, has become an important centre of science through the growth of the Scientific Government Departments The United States possess a Washington Science, which is often compared and contrasted with College Science, with the Science of the Universities The important point to remember is that the Federal Government believes in the practical value of science and that the American Government, by promoting science in its departments, has undoubtedly been largely instrumental for the increase in the productive power of the nation and for the disappearance of the deadly spirit of conservativism and routine from economic life

As an adequate account of the Scientific Department in Washington and of their educational activities and achievements would require a large volume, I would briefly describe one or two of these departments in the words of the most authoritative exponents

Among the scientific and educational departments of the United States, the Department of Agriculture is the largest and it is particularly interesting because the value of the services which it has rendered is clear to all The Americans are an intensely practical people Hence the practical utility of an American public institution may be gauged to some extent by the amount of public money which is devoted to its support and which is spent by it. The growth of the United States Department of Agriculture in importance, in activity and in general esteem may therefore be gauged from the following extraordinary figures

EXPENDITURE OF THE UNITED STATES DEPARTMENT OF AGRICULTURE

Year	*Dols.*
In 1842	1,000
In 1850	5,500
In 1860	40,000
In 1870	156,440
In 1880	199,500
In 1890	1,170,139
In 1900	3,625,851
In 1910	16,976,022
In 1916	28,031,540

The funds voted for the Department of Agriculture have increased nearly two hundredfold since 1870 and nearly eightfold since 1900

Large and small are terms of comparison The importance of the amount voted to the Department of Agriculture may be seen by comparison with the funds voted by Parliament for the British Board of Agriculture and Fisheries The two Boards compare financially as follows

	Dols	£
Money voted for the United States Board of Agriculture in 1916	28,031,540	5,606,308
Money voted for the British Board of Agriculture in 1916		341,648
Salaries paid by United States Board of Agriculture in 1916	10,436,792	2,087,358
Salaries paid by the British Board of Agriculture in 1916		146,118

The United States Board of Agriculture spent in 1916 fourteen times as much in salaries as the British Board of Agriculture, and spent altogether sixteen times as much as the corresponding British institution.

In 1903, when the American Board of Agriculture was still comparatively small and unimportant, when it spent only about £1,000,000 per year, or less than one-fifth as much as it is spending now, the Mosely Educational Commission visited the United States. Professor Henry E. Armstrong, F.R.S., the distinguished chemist, accompanied it, and he reported after his return:

> SCIENCE IN THE SERVICE OF THE STATE.—The most striking illustrations of American organising ability are to be met with at Washington. So far as I am aware, there is nothing anywhere to compare with the way in which science is being utilised in the service of the State by the U.S. Department of Agriculture, which is located in the capital.
>
> The Department now comprises the following branches:
>
> Office of the Secretary.
> The Weather Bureau.
> Bureau of Animal Industry.
> ,, Plant Industry.
> ,, Forestry.
> ,, Chemistry.
> Soils.
> ,, Statistics.
> Division of Entomology.
> ,, Biological Survey.
> ,, Accounts and Disbursements.
> ,, Publications.
> Office of Experimental Stations.
> ,, Public Road Inquiries.
> Library.

On July 1, 1902, the staff numbered 3,789, of whom 1,209 were executive officers, clerks and messengers, 2,081 scientific investigators, and 499 labourers.

The Agricultural Department in Washington is not merely an office—it is also a busy hive of research. A large number of laboratories are attached to it, in which investigations are being carried on, bearing, in one way or another, on problems in agriculture. Much research work is also done in the State Experiment Stations, in the main, however, these serve to bring under the notice of farmers the importance of science to agriculture by demonstrating the value of methods of cultivation, manures, etc There is no question that the research work done under the auspices of the Agricultural Department and in the experiment stations is of the very greatest value, and is contributing most materially to the development of agricultural industry To take only one illustration, whereas, in 1884, the amount of sugar made from sugar-beet was only about 300 tons, the beet crop of the past year is estimated to yield 400,000 tons, the amount of sugar made in the United States from the sugar-cane being only about 300,000 tons. This extraordinary increase, I believe, is due practically entirely to the influence exercised from Washington A map showing the regions in which the temperature conditions were favourable to the growth of the sugar-beet was first prepared by Dr. Wiley, the head of the Bureau of Chemistry. Seed was then issued to farmers in various districts, together with directions how it was to be dealt with, and the produce was subsequently examined for sugar, in this way it was determined where the beet could be grown successfully The advantages to be derived from the cultivation of the crop were also made clear to the farmers. An industry of great importance has in this way been gradually brought into existence; at the same time, farming practice has been vastly improved and land has increased considerably in value, owing to its having received proper treatment

The Department is undoubtedly exercising an extraordinary influence on the education of farmers by distributing literature among them, and by encouraging and helping them in every possible way, indeed, it is certain that, by one means or another, the American farmer is gradually being led to see that science is indispensable to agriculture . .

One branch of work initiated in the Office of Experiment Stations at Washington of extreme importance, to which reference should also be made, is that relating to the nutrition of man, which has been carried out in various parts of the States under the supervision of my friend Professor Atwater—a fellow-student with me in Germany in years gone by—who initiated the inquiry in 1877. The scope and results of the investigation are described in the Report of the Director of Experiment Stations for the year ending June, 1901. Undoubtedly the most important and valuable part of this work has been that done during recent years at the Wesleyan University, Middletown, Conn., where a large respiration chamber has been erected and brought to a remarkable state of perfection by Professors Atwater and Benedict. The installation is a very costly one It is possible for a man to live within this chamber for days or even weeks, and for account to be kept during the whole time, not only of the products of respiration, but also of the amount of heat given out and the oxygen consumed, with a degree of accuracy equal to that with which ordinary analyses are carried out in a laboratory. No better illustration can be given of the amount of thought and care which is now being devoted to investigations of practical importance in the United States. I went specially to Middletown to examine the apparatus, and was gratified beyond measure, to see it alone was worth a pilgrimage to America. The investigations which can be carried out with such a chamber are of far-reaching importance, and touch very closely on the domain of household economics. It is much to be desired that we, on this side, should be able to do similar work.

The Geological Survey is also a well-organised department in Washington. The wealth of material at the disposal of American geologists is extraordinary. If opportunity beget supply, we may look to America as the breeding-ground of geologists in the future. Besides field work and the attendant office work, the department now carries on scientific research work on geological problems. It has a well-equipped Chemical Department, at the head of which is Professor Clarke, who a few months ago delivered in Manchester the lecture commemorative of the centenary of Dalton's atomic theory. Much valuable work has been done in this department, which is now quite the seat of authority in mineral analysis, Dr. Hillebrand, the senior member of Professor Clarke's staff, being probably the most accomplished and experienced analyst of the day.

Lastly, it may be mentioned that a Bureau of Standards has recently been established at Washington to do work on the lines of that done by our Standards Department, the Board of Trade and the National Physical Laboratory, but with a wider outlook than any of these and well provided with funds.

When we consider how unco-ordinated our efforts are, how little public appreciation exists of the value of science to the community, it is impossible not to feel envious of what is going on in Washington. It would well repay us to inquire very fully into the causes which have operated to produce a willingness in America to listen to counsel which here passes altogether unheeded. Something must be done to create a public belief in the value of knowledge, which will lead us to co-ordinate our scattered efforts. So long as our outlook is merely insular, the future may appear to afford little promise; but if we consider the possibilities the Empire affords, there is no reason why our outlook should not be as hopeful as that of the United States. The resources at our disposal, the agricultural possibilities within the Empire, may well be regarded as boundless; but we need to make ourselves acquainted with them and to take concerted measures to exploit them. To this end, it is all-important to constitute effective central organisations in this country similar to those which exist in the United States.

In 1902, when the United States Department of Agriculture spent only about £1,000,000 per year, it had a staff of nearly 4,000, of whom more than 2,000 were scientific investigators. Since then the staff has been more than quadrupled. The United States Secretary of Agriculture commands now a veritable army of experts.

A University has a twofold purpose: research and tuition. The United States Board of Agriculture acts like a gigantic University. It carries out research by thousands of experts of its own. In addition, research is carried on independently by thousands of experts employed by the richly endowed Departments of Agriculture belonging to the individual States. The results of these investigations and of the experiments made by private societies and individuals are collected, sifted and classified at Washington, and are then communicated to the agriculturists by means of pamphlets, books, etc. As adjectives do not suffice to describe the colossal literary activity, the teaching activity, of the United States Board of Agriculture, I would endeavour to describe it by means of figures. Mr. J. A. Arnold, the Chief of the Division of Publications, in his Report for 1910, stated that in the course of that year the United States Board of Agriculture issued 1,983 publications which together contained 42,503 pages The number of pages published in that single year by the American agricultural authorities was twice as great as the number of pages contained in the *Encyclopædia Britannica.* The entire literature published in 1910 by the Board of Agriculture came to 25,190,469 copies, of which 4,424,300 were issued by the Bureau of Plant Industry, 4,034,000 by the Office of Experiments Stations, 1,703,225 by the Bureau of Animal Industry, etc. Commenting upon this incredible and almost unimaginable output, Mr. Arnold stated:

> No other Government publishes as many public documents as the United States, and no other executive department of the Government issues as many publications as the Department of Agriculture. It is the function of this Department to acquire and disseminate useful information in regard to agriculture. With the rapid increase in population of the country, and the consequent

increasing demand for publications, it became apparent many years ago that the Department could probably never secure an appropriation sufficient for printing enough documents to supply the demand. Congress has, however, provided a solution of the problem by authorising the sale of Government publications at a nominal price. Under the operation of a provision of the law, the Superintendent of Documents can reprint and sell any publication, so long as there is a demand for it, without any expense to this Department. Consequently, by paying the price affixed by law, applicants are able to secure documents which can no longer be obtained from the Department, and which would not otherwise be available, owing to the insufficiency of the department's fund for printing additional copies.

The United States Department of Agriculture teaches not only by means of its publications—it might fitly be described as the greatest correspondence school in the world—but also by lecturing, as does every University. However, while at the Universities the students have to come to the lecturers, the lecturers and demonstrators of the Department of Agriculture go to the agriculturists. The United States Department of Agriculture found it particularly difficult to improve cultivation among the backward and largely illiterate negroes in the South. Therefore it resolved to reform their methods by "agents in the field"; and as negroes are often extremely suspicious of white men when they come offering them advice for nothing, many coloured lecturers and demonstrators are especially trained for the purpose. In his Report for 1910 the Secretary of Agriculture stated with regard to the activity of his Department in the South:

From 1904 to 1909 there was an increase from 1 to 362 agents in the field. The number has now reached 450, and the demand for more is urgent. More than 75,000 farmers are receiving direct instruction on their farms.

It has been found by experience that the only way to reach some farmers and to get them to follow better methods of farming is through their boys. Where a farmer's boy has been enlisted in a corn club and produced on his father's farm an acre of corn yielding from 50 to 200 bushels at a cost of not more than 30 cents a bushel, the farmer is no longer sceptical about improved farm methods.

In 1909 there were 10,543 boys enrolled in these clubs. In 1910 the number has increased to 46.225. This feature of the work has aroused unbounded interest and enthusiasm and turned attention toward the farm. Public-spirited citizens in the various Southern States have contributed $40,000 for prizes for these boys. Prize-winners in four States were given trips to Washington and awarded diplomas of merit. This year such trips are offered from every Southern State through bankers' associations, boards of trade, educational associations, private citizens, and state fairs. Governors and superintendents of public instruction will give diplomas similar to those earned last year to all boys who make excellent records.

When a boy makes a thorough study of corn it is easier to succeed with other crops. Some of the boys in the boll-weevil parishes of Louisiana have not only broken the records in corn production there, but have achieved the same extraordinary results with cotton, potatoes, onions, and other crops.

Marked changes in general farm methods and in the economic life of the people do not take place in a single year. The few demonstrations in each neighbourhood the first year attract attention and dispel doubt, the second year brings increasing success, and the third year usually marks the beginning of the general adoption of the changed methods, though time is required to make the adoption universal and thorough in a community.

Consecutive Secretaries of Agriculture have commented on the practical utility of their Departments with justifiable pride. For instance, the Secretary of Agriculture stated in his Report of 1906:

The work of the Department of Agriculture has already had results which are valued at hundreds of millions of dollars annually, and yet the Department feels that it has barely crossed the threshold of its mission of discovery and education. Co-operating to the same ends are sixty Experiment Stations in fifty-one States and territories, the sixty-three Agricultural Colleges, thousands of farmers institute meetings yearly, many excellent agricultural periodical publications, and new instructive books. Then there is a new line of work which is so productive of results that it is constantly extending, and that is the Demonstration Farm, the encouragement of individual farmers to change their agriculture so as to multiply their yield and their profits, and thus afford object-lessons to other farmers. Thus it appears that forces are now at work which will very considerably increase the production of the farms within a generation, and which promise to continue that increase indefinitely.

The sterling worth of the educational work done by the United States Department of Agriculture has been gratefully recognised by America's ablest statesmen. For instance, President Roosevelt stated at Sioux Falls:

> The Department of Agriculture devotes its whole energy to working for the welfare of farmers and stock-growers. In every section of our country it aids them in their constantly increasing search for a better agricultural education. It helps not only them, but all the nation, in seeing that our exports of meats have clean bills of health, and that there is rigid inspection of all meats that enter into inter-State commerce. Thirty-eight million carcasses were inspected during the last fiscal year. Our stock-growers sell forty-five million dollars' worth of live-stock annually, and these animals must be kept healthy or else our people will lose their trade. Our exports of plant products to foreign countries amount to over six hundred million dollars a year, and there is no branch of its work to which the Department of Agriculture devotes more care. Thus the Department has been successfully introducing a macaroni wheat from

the headwaters of the Volga, which grows successfully in ten inches of rainfall, and by this means wheat-growing has been successfully extended westward into the semi-arid region Two million bushels of this wheat were grown last year: and being suited to dry conditions, it can be used for forage as well as for food for man.

The Department of Agriculture has been helping our fruit men to establish markets abroad by studying methods of fruit preservation through refrigeration and through methods of handling and packing. On the Gulf coasts of Louisiana and Texas, thanks to the Department of Agriculture, a rice suitable to the region was imported from the Orient, and the rice crop is now practically equal to our needs in this country, whereas a few years ago it supplied but one-fourth of them The most important of our farm products is the grass crop; and to show what has been done with grasses, I need only allude to the striking change made in the entire West by the extended use of alfalfa

Moreover, the Department has taken the lead in the effort to prevent the deforestation of the country Where there are forests we seek to preserve them, and on the once treeless plains and the prairies we are doing our best to foster the habit of tree-planting among our people. In my own lifetime I have seen wonderful changes brought about by this tree-planting here in your own State and in the States immediately around it

On December 3, 1901, President Roosevelt stated in his "Messages to Congress":

The Department of Agriculture during the past fifteen years has steadily broadened its work on economic lines, and has accomplished results of real value in upbuilding domestic and foreign trade It has gone into new fields until it is now in touch with all sections of our country and with two of the island groups that have lately come under our jurisdiction, whose people must look to agriculture as a livelihood. It is searching the world for grains, grasses, fruits and vegetables specially fitted for introduction into localities in the several States and territories where they may add materially to our resources.

By scientific attention to soil survey and possible new crops, to breeding of new varieties of plants, to experimental shipments, to animal industry and applied chemistry, very practical aid has been given our farming and stock-growing interests The products of the farm have taken an unprecedented place in our export trade during the year that has just closed.

The United States Industrial Commission of 1902 reported:

> Agriculture has derived more benefit from the establishment of the Department of Agriculture and from its administrative work than from any of our Federal legislation The annual injury to fruit and grain from the ravages of insects would probably be double what it is now but for the work of the Department. The distribution of weather forecasts has been of incalculable value in aiding farmers to give timely care to crops. Its experiments in proving the adaptation of crops to climates and soils have developed agriculture into a science, and thus alike benefited the industry and the country in general.

It would be easy to fill a large volume with similar pronouncements made by the most eminent American statesmen and the leading agriculturists

The United States Department of Agriculture has for many years, through its Bureau of Chemistry, made exhaustive investigations relating to the adulteration of food and to the effect of the various preservatives used upon the human system. These investigations are carried on not only by chemical analyses made in the laboratory but also by practical experiments made upon men. The Department of Agriculture has in its employment a number of selected young men, mostly chemical enthusiasts, called "The Poison Squad," who submit themselves cheerfully to lengthy and dangerous tests, including the taking of adulterated foods and preservatives, for the benefit of science and of the human race.

Other departments of the Federal Government and of the Governments of the individual States resemble the United States Department of Agriculture by their energetic and useful activities The industrial and commercial interests of the United States have been vastly benefited by the scientific branches of the Department of Commerce and Labour, by the excellent Patent Office, which Great Britain might copy with advantage, and by the ably directed Bureau of Standards. The efficiency of the American railways has been vastly increased by the Inter-State Commerce Commission, which has abolished the unfair discriminations which formerly prevailed in favour of large shippers and of certain localities That Commission has brought about uniformity in railway equipment, uniformity and lucidity of railway accounting, the introduction of an excellent automatic signalling system, of automatic couplers on the railways, etc, and its utility has been gratefully acknowledged even by the railways themselves. The funds voted for the Inter-State Commerce Commission have increased from $242,914 in 1900 to $5,016,136 in 1916 The investigations and publications of the Geological Survey are invaluable to all who are interested in mining. All these scientific services are lavishly endowed with funds. Altogether the Federal Government spends on the principally scientific services about £10,000,000 per year.

The United States Government and the Governments of the single States try to educate the grown-up in the best and most scientific methods of business, not only by tuition, but also by example Most of the great Government Departments are run like large, well-organised businesses They are models of administrative efficiency.

The American Government offices are staffed, not with dull bureaucratic automatons, not with human derelicts and petrefacts, but with keen, open-minded and striving business men. While the productive Government undertakings of Europe are, as a rule, models of waste and of bureaucratic incompetence, many of the American Government undertakings are executed with extraordinary ability, rapidity and efficiency at surprisingly low cost The Panama Canal, many of the great irrigation works in all parts of the Union, the regulation of river courses, etc., have been executed by the Federal Governments, through the Army Engineers with such ability and at so low a cost as to be a model to private engineers and contractors. The Government Printing Works at Washington are probably the largest and the most efficient printers in the world, etc.

The wealth of nations depends obviously less on the possession of great natural resources than on the ability and activity of the men who exploit them. While a good general and classical education, given on traditional lines, produces men of culture who may be delightful talkers and companions, but who may possess no particular qualification for assisting or directing the production of wealth, a good practical and scientific education, given to the largest possible number of people, is a most powerful instrument for achieving national economic success. In a world in which scientific production, scientific transport and scientific commerce have become general, success falls naturally to trained scientific ability. The rapid and vast industrial progress of the United States and of Germany is largely due to the general appreciation and the energetic promotion of education, while England's industrial backwardness is largely due to indifference to education on the part of both masters and men. After all, rough unskilled workers can only do rough and unskilled work. We read in the Report on Technical Education published by the United States Commissioner of Labour in 1902.

> To determine the progress of trade education in Europe during the last two or three decades one turns to Germany rather than to any other country, because of the great impetus that trade education has there received, and because its development has corresponded with a most remarkable advance of pure scientific knowledge on the one hand and of industry on the other It is inevitable that some causal connection should be seen between these two conditions . .
>
> All English teachers deplore the lack of enthusiasm for education among all classes . A serious obstacle to the progress of technical education is the indifference of employers . . Another very serious obstacle—in fact, the most serious of all—is the poor general education of the English workman Nearly all of the artisan class leave school at twelve or thirteen, and after earning small amounts in doing odd jobs about the streets or in factories, settle down at fifteen or sixteen as general labourers or factory operatives, or enter upon the learning of a trade When they go to the evening technical classes at fifteen or sixteen, they have forgotten much of what they knew upon leaving the elementary school.

In winter, 1903, the late Mr Alfred Mosely, a retired merchant, sent to the United States at his own expense a Commission of experts, who were asked to study and to compare the British and American educational systems and to express their opinion in writing. Mr Mosely himself reported·

> One of the things that struck me, all through the United States, was the large amount of money devoted to educational purposes, the buildings being magnificent and the equipment lavish The teachers seemed fired with enthusiasm, and there is a thirst for knowledge shown by pupils of all ages which is largely lacking in our own country. In contrast to our education, which

has to a large extent been "classical," I found that in America it is the "practical" subjects which are principally taught, and technical classes and schools are to be found everywhere. There are also excellent opportunities for those going into the professions to take up classical subjects; but with the ordinary "everyday" boy who has to fight his way in the world the bulk of the time is devoted to practical subjects likely to be of most use to him in after-life American boys remain at school much longer than is the case here, often, in addition, passing through to the secondary schools and colleges at little or no expense to their parents or themselves. . . .

My observations lead me to believe that the average American boy when he leaves school is infinitely better fitted for his vocation and struggle in life than the English boy, and in consequence there are in the United States a smaller proportion of "failures," and fewer who slide downhill and eventually join the pauper, criminal, or "submerged tenth" class. The aim of education in America is to make every boy fit for some definite calling in life, and my own experience leads me to think that nearly every lad, if properly trained, *is* fit for something . . .

Another point that struck me was the intense belief of the Americans in the education of the masses. They feel that their country cannot progress and prosper without it. . . . Further, from a purely business point of view, Americans see in the money spent on education a magnificent investment for their country. . . .

Again, whilst British rich men spend large sums upon sport of various kinds, it appears to be the hobby of moneyed Americans to devote enormous amounts of money to the endowment and equipment of various educational institutions. They pass their lives in strenuous work, and their labours in building up industries and developing territory are of infinite value to their people, recalling what was the ideal of the late Cecil Rhodes—viz., that the truest philanthropy consists in creating industries and fields of industry to occupy the masses and afford them remunerative employment. . . .

Personally I credit the American nation with an intense ambition not only to raise themselves individually, but also to use their efforts for the raising of their fellows and for the furtherance of civilisation. . . . I have heard it urged that in America there is no aristocracy but that of money I beg to differ The contention may on the surface appear to be true, but if the matter be probed a little deeper it will be found that in reality the aristocracy of money is an aristocracy of brains.

Mr. E. W Black, Mayor of Nottingham and Chairman of the Nottingham Education Committee, reported :

The great facts remaining with me as the result of my educational investigations in America are:—

(1) That public opinion is much more strongly in favour of education than in this country,

(2) That the scholars in America take a keener interest in their studies than is generally apparent here, and

(3) That the teaching given in the elementary schools produces a mental alertness and readiness of mind to a greater extent than is secured in this country.

The people of America believe in education, and they are willing to pay for it They regard it as an investment of their money on which they get a good return. The people of England are only half-persuaded of the value of education, and there are still many who regard even the present expenditure as extravagant . .

In England the great majority of the children leave school at the earliest possible moment: they go out to work to help to increase the family income In America the children stay longer at school, and one of the leading educational experts in America said to me, "We find that there is a direct ratio between the number of years spent in school and the productive capacity of the scholars in dollars and cents "

Professor Papillon stated :

To sum up what has struck me most forcibly in a short and imperfect survey of a wide field is first of all the attitude of the American people towards public education as a prime necessity of national life, for which hardly any expenditure can be too great, and next its eminently practical popular character. .

The educational systems of America have the merits and defects of much else in that great, but as yet unfinished, country. They are full of life and energy; freely, not to say rashly, experimental; innovating, renewing, abandoning, sacrificing, now one point, now another, whether of ideas or practice, in the effort at growth and development. They are less systematically and scientifically thought out beforehand than the more symmetrical systems of Continental Europe; but they are, perhaps, for that very reason, more suggestive to ourselves, to a free people feeling its way along the same road .

Councillor John Whitburn, of the Newcastle-on-Tyne Education Committee, reported

I spent some days with 125 officers of the Cash Register Works, and found that everyone had received a good education of some sort. I was assured by the chief of the Inventions Department of that concern that "the best and most of their inventions and improvements of machinery were brought about by those who were best educated and who were able to embody their ideas in a creditable drawing" This is the sort of testimony one meets with on every hand. In the United States, more than in any other country, one finds that the business man is also an educator, and that the educator is a business man also. . . .

The American business man is more often an educationalist than an active politician. Nearly every large industrial concern has some sort of educational centre, or department, into which is directed an enormous amount of money and personal energy. The money spent on public education by no means represents the whole effort of the nation to raise itself to a higher intellectual level. . . .

As the result of his superior education, the American workman requires less supervision and direction than is customary in this country. . . . So eager are the American workmen to acquire a technical knowledge of their trades that the authorities of the Pratt Institute informed us that they were reluctantly compelled to refuse one-half of those who applied for admission to their classes for engineering drawing. This great institution employs no fewer than 115 teachers.

American industrial progress is due more than anything else to the determination shown by the American working classes to equip themselves in the most thorough-going fashion. Hundreds of employers testify to the fact that there has been an improvement in the quality of the work and an increase in the quantity of the output as the result of technical education. . . . Mr. Johnson, Director of the Baldwin Locomotive Works, informed me that the trade and manual training schools are indispensable, whilst the technical schools have made the country great. . . .

On every hand I saw the evidence of a scientific and technical training in industrial operations. At the National Cash Register Works I saw machines in operation which take 103 separate cutting and boring tools, and I was assured that these machines were all evolved by their own employees. . . . There is urgent need for all those who are in any way concerned about the future of the British industries to give the most earnest consideration to the question of the practical education of our artisan class. . . .

I spent the last three weeks of my time in the United States in visiting a large number of industrial concerns and in studying the conditions under which the working people of the country live and labour I formed a very high opinion of the American workers of both sexes. The men are alert, highly intelligent, sober and self-respecting in the highest degree The American workman is invariably courteous and accommodating—in a word, a gentleman. With respect to the women who work for a living, I have been delighted to observe the evidence of a superior culture of the intellect and character. . . . The far-seeing American employer recognises that there is a substantial economic value behind every reform which contributes to the intellectual vigour and the personal comfort and happiness of every employee.

The English educational system is grossly inefficient. It does not adequately prepare the people for the struggle of life. It creates inefficient leaders and an equally inefficient rank and file. Professor Huxley wrote many years ago: "We study in these days not to know, but to pass, the consequence being that we pass and don't know." That is, unfortunately, still true. British education is largely a sham which creates sham experts and sham leaders.

The United States owe their vast wealth not merely to the great extent of their territory and of the natural resources contained in it, but also, and particularly, to the energy and ability with which the resources of nature have been exploited by the people. The energy and ability of the American people are very largely due to the practical and thorough education and training which they have received. Their abilities are rather acquired than inborn America's economic success is largely due to the fact that, in the words of the late Mr. Choate, "education is the chief industry of the nation." The territory and the resources of the British Empire are vastly greater than those of the United States The British Empire may therefore far exceed the United States in white inhabitants, in agriculture, in the manufacturing industries, in wealth and in power, if the British people are willing to learn from America's example.

CHAPTER VII

LABOUR AND CAPITAL AFTER THE WAR*

It is generally agreed that the present War will open a new chapter in the history of the world. At its conclusion the present generation will be faced with a number of most important problems, the solution of which will affect future generations for centuries to come It will give rise to a new set of conditions in the relations between the nations of the world It may permanently affect the relations between rulers and ruled It is bound to revolutionise completely economic conditions, and particularly the relations between labour and capital At the end of the War all the combatant nations will be left with a staggering burden of war debts. Demobilisation will have to take place gradually, and will be very costly. Great Britain will have a National Debt amounting at least to £10,000,000,000 It remains to be seen whether the vast sums lent to Britain's Allies can be repaid, and whether substantial indemnities can be obtained from Germany and her Allies. As Belgium, France, Serbia, Rumania, Poland and Russia, whose territories have been devastated, have naturally the first claim upon such indemnities, little may be left to satisfy the claims of Great Britain.

The British Empire is in the happy position that it possesses in the Dominions and Colonies unlimited latent wealth. A century ago the Overseas possessions of this country were worth a few paltry millions. Since then their wealth has rapidly increased. In a few years it will approach that of the Motherland, and in a few decades it should vastly exceed it. It stands to reason that the Dominions and Colonies can bear, as they would wish, part of the War Debt. Besides, the undeveloped resources of the Empire might in part be reserved for the repayment of the War Debt. Before the War British yearly budgets showing a national expenditure of £200,000,000 seemed monstrous. After the War a national expenditure of £600,000,000 per year may seem exceedingly moderate.

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* From *The British Dominions Year-Book*, 1918.

British workers have become accustomed to a vastly improved standard of living, to better food, better furniture, better clothes, more amusements, etc. They will not care to go back to the low wages and the conditions which prevailed before the War. Moreover, the men in the trenches have rubbed shoulders with men from Canada, Australia, New Zealand, South Africa and the United States, and have been made acquainted by them with labour conditions across the sea. As Canadian, Australian, New Zealand and South African wages are also approximately three times as high as are British wages, British wage-earners would migrate to the Dominions and to the United States in millions should they not obtain after the War largely increased wages comparable with those paid in the new countries. We must accustom ourselves to the idea that British wages will have to be Americanised.

Vast burdens will be thrown upon the nation, the taxpayers, and particularly upon the employers, the capitalists. Happily, there is reason for believing that the economic difficulties caused by the War will not overwhelm this country—that they may prove a blessing in disguise. Men are born idlers. They work, as a rule, only when compelled. Civilisation is at its lowest in the happiest climes where men can live without work, and it is most highly developed where a rigorous climate or hard social conditions force men to produce intensively. The most powerful promoter of civilisation is the tax collector. The enormous increase in taxation caused by the ruinously expensive war against Imperial and Republican France a century ago brought about a tremendous expansion of British industry. It made this country the workshop of the world. The Civil War of 1861-1865 was responsible for vastly increased taxation which, in turn, raised the American industries to the highest point of efficiency The present War Debt and very high taxation required by it should prove an invaluable stimulus to British capital and labour. The War is likely to treble permanently the national expenditure and taxation It is bound to lead to a vast increase in wages. I intend to show that the increased taxes and wages can easily be found by Americanising British production, and that the War, far from impoverishing this country, may ultimately vastly enrich both Motherland and Empire.

Before the War American wages were approximately three times as high as were British wages. In 1915 the United States Department of Labour published a volume of some three hundred pages entitled *Union Scale of Wages and Hours of Labour, May* 1st, 1914. Wage figures are given in it for a number of the more important American towns. Perhaps the most interesting American town with regard to wages is Chicago, because it is the most international. Being situated between East and West, the wages paid in Chicago are above those paid is some of the Eastern towns, such as Boston and Philadelphia, and below some of the Western towns such as San Francisco and Los Angeles. On May 1, 1914, the following weekly wages were paid in Chicago in some representative occupations:

	Dols.	£	*s.*	*d.*
Bakers' foremen, day work	20	4	0	0
,, ,, night work	22	4	8	0
,, second-hands, day work	18	3	12	0
,, ,, night work	20	4	0	0
Bakers' Bohemian bread, oven-men, day	20	4	0	0
,, ,, ,, ,, night	22	4	8	0
,, ,, ,, second-hands, day	18	3	12	0
,, ,, ,, ,, night	20	4	0	0
Bakers' Hebrew bread foremen	26	5	4	0
,, ,, ,, second-hands	23	4	12	0
Bakers' Scandinavian bread, foremen, day	20	4	0	0
,, ,, ,, ,, night	22	4	8	0
Bakers' Scandinavian bread, second-hands, day	18	3	12	0
Bakers' Scandinavian bread, second-hands, night	20	4	0	0
Bricklayers	33	6	12	0
,, sewer and caisson work	55	11	0	0
Carpenters	28.60	5	14	5
Cement workers	28.60	5	14	5
Builders' labourers	17.60	3	10	5
Tile-layers	33	6	12	0
Coal-carters, one horse	15	3	0	0
,, two horses	18	3	12	0
,, three horses	21	4	4	0
Boiler-makers, manufacturing shops	21.60	4	6	5
,, outside	27.50	5	10	0
Moulders	24	4	16	0
Compositors, English	24	4	16	0
,, Bohemian	24	4	16	0
,, German	24	4	16	0
,, Norwegian	24	4	16	0
,, Polish	21	4	4	0
,, Swedish	24	4	16	0

The wages given were minimum wages. The hours of labour were rather short. In the baking trade in Chicago they ranged from 48 to 54 hours per week. In the building trade they were 44 hours per week. The carters worked 66 hours, the metal workers from 44 to 54 hours, the compositors 48 hours, etc. Many employers pay more than the union rate of wages. Overtime on weekdays is as a rule the standard rate and a half, and overtime on Sundays and holidays is paid usually at twice the normal wage. A Chicago bricklayer earns 3s. an hour on weekdays and 6s. an hour on Sundays.

It will be noticed that the average wage of skilled workers is about £5 per week, while the average wage of unskilled labourers comes to from £3 to £4 per week, and that the wage paid to German, Czech, Norwegian, Polish, Scandinavian and Hebrew workers is approximately as high as that paid to native Americans and to Englishmen. Officials and salary earners receive similarly high pay. Policemen receive on joining $1,000, or £200 per year, and after five years' service as first-grade patrol men they obtain $1,400, or £280, which is equal to £5 8s per week The wages of firemen, postmen, servants, clerks, office-boys, shop-girls, agricultural labourers, etc , are similarly high

British workers have frequently agitated for considerably increased wages, but their demands have hitherto been opposed by their employers, who usually have pleaded that a considerable increase in wages was impossible; that they were working with a narrow margin of profit; that a considerable addition to the wages bill would so greatly increase the cost of production that they would have to shut down, because they could not sell their productions at an enhanced price in the world's markets, and not even in the home market. There was no doubt a good amount of truth in the arguments used.

Although American wages, both for skilled and unskilled labour, were before the War approximately three times as high as corresponding British wages, American commodities were sold freely in neutral countries, and even in competition with British productions made by cheap labour. In many lines American goods were even far cheaper than similar British wares By far the cheapest motor cars obtainable in this country are Fords and other American machines which are produced by very highly paid labour This fact suffices to show that lowness of wages does not necessarily mean cheapness of production If the one led to the other it would logically follow that industrial supremacy should not be in the hands of the United States, but in those of China and India

The fact that the American industries can successfully compete with the British low-wage industries is not due to dumping. All who have gone to the United States or who have closely studied American economic affairs know that America produces as cheaply as does this country, treble wages notwithstanding American agricultural and industrial productions are sold at about the same price wholesale as are the equivalent British productions. Sometimes they are a little dearer and sometimes they are cheaper. People who complain about the high cost of living in America usually think of the dearness of everything where personal services are involved. The fact that wholesale prices in England and America are about equally high notwithstanding the vast differences in wages can best be seen by comparing the prices of certain standard commodities such as steel, or steel rails, or plain cotton goods, or wheat, or meat, in England and the United States during a number of years.

Notwithstanding treble wages, the American industries as a whole produce as cheaply as the British industries, and sometimes more cheaply, because the American workers produce approximately three times as much as do their British colleagues. They succeed in this because the American industries are on the whole better organised and more scientifically managed, and especially because the American workers have not only better machines, as is fairly generally known, but also because the engine-power per thousand workers is approximately three times as great as is British engine-power. These assertions seem incredible, but are true If we wish to compare British and American output per worker per year we must turn to the American and British Censuses of Production The British Census of Production was taken in 1907 and an American Census in 1909 The two years lie so near together that one may fairly compare results.

There is, of course, a difficulty in comparing the efficiency of British and American labour. In the first place, the industries in the two countries have not always been officially classified in the same manner. Therefore many industries, such as the iron industry, cannot be compared by means of the Census figures. In the second place the qualities of American and British produce frequently differ widely. These considerations have necessarily narrowed the range of comparable figures.

The following table contains statistics relating to some British and American industries which may fairly be compared. They will show conclusively that in many of the comparable industries the American workers produce approximately three times as large a quantity of goods as do their English colleagues, and that they succeed in producing three times as much not because they work three times as hard, but because, as is also shown in the table, the United States use in the identical industries approximately three times as much horse-power per thousand men as does Great Britain. The following figures were published by me in the *Fortnightly Review* for August, 1913, and in the *Nineteenth Century* of December, 1915 They have been widely discussed and criticised in the leading technical journals, such as

Engineering and *The Engineer*, and by many eminent industrialists, but they have hitherto not been successfully challenged:

	Production per Year	*Number of Wage-Earners*	*Horse-Power Employed*	*Horse-Power per 1,000 Wage-Earners*	*Value of Production per Wage-Earner per Year.*
Boots and Shoes:	£				£
United Kingdom ..	20,095,000	117,565	20,171	172	171
United States .	102,359,000	198,297	96,301	486	516
Cardboard Boxes:					
United Kingdom ..	2,067,000	19,844	2,288	114	106
United States ..	10,970,000	39,514	23,323	590	275
Butter and Cheese:					
United Kingdom ..	10,164,000	7,754	11,372	1,477	1,310
United States .	54,911,000	18,431	101,379	5,507	2,979
Cement:					
United Kingdom ..	3,621,000	18,860	60,079	3,195	192
United States .	12,641,000	26,775	371,799	13,873	472
Clothing:					
United Kingdom ..	62,169,000	392,094	17,837	45	158
United States .	190,566,000	393,439	65,019	165	484
Cocoa, Chocolate and Confectionery:					
United Kingdom .	16,171,000	54,629	19,898	346	296
United States ..	31,437,000	47,464	46,463	980	662
Cotton Goods.					
United Kingdom .	132,000,000	559,573	1,239,212	2,214	236
United States ..	125,678,400	378,880	1,296,517	3,433	332
Clocks and Watches.					
United Kingdom ..	613,000	4,448	550	125	137
United States ..	7,039,400	23,857	14,957	628	296
Cutlery and Tools:					
United Kingdom ..	2,047,000	12,485	5,248	420	164
United States ..	10,653,200	32,996	62,294	2,069	323
Dyeing and Finishing Textiles:					
United Kingdom .	18,000,000	97,588	190,252	1,949	184
United States ..	16,711,200	44,046	107,746	2,449	379
Gasworks:					
United Kingdom ..	20,844,000	49,413	33,618	687	422
United States ..	33,362,800	37,215	128,350	3,469	897
Firearms and Ammunition:					
United Kingdom ..	677,000	4,444	2,619	595	152
United States ..	6,822,400	14,715	17,840	1,214	464

	Production per Year	*Number of Wage-Earners*	*Horse-Power Employed*	*Horse-Power per 1 000 Wage-Earners*	*Value of Production per Wage-Earner per Year.*
	£				£
Gloves:					
United Kingdom ..	1.056.000	4.532	509	113	**233**
United States ..	4.726.200	11.354	2.889	256	**416**
Hats and Caps:					
United Kingdom ..	5.256.000	28.420	5.142	181	**149**
United States ..	16.598.000	40,079	23.524	588	**414**
Hosiery:					
United Kingdom ..	8,792.000	47,687	7,784	163	**184**
United States: ..	40.028.600	29.275	103,709	804	**309**
Leather Tanning and Dressing:					
United Kingdom ..	18 289.000	26.668	22.609	847	**686**
United States ..	65.574 800	62,202	148,140	2.389	**1.054**
Lime:					
United Kingdom ..	2.184.000	15.532	10,867	701	**141**
United States ..	3.590.400	13.897	27.671	1.991	**258**
Brewing and Malting:					
United Kingdom ..	67 254.000	68 996	64.636	937	**975**
United States ..	82.616.400	56 339	347.726	6.2[illegible]9	**1.466**
Matches:					
United Kingdom .	862 000	3.865	1.591	408	**223**
United States ..	2,270 600	3.631	6 224	1.729	**625**
Paint, Colours and Varnish:					
United Kingdom ..	9,127,000	10 574	14,575	1,375	**863**
United States ..	24.977.800	14.240	56,162	4,012	**1.754**
Paper.					
United Kingdom ..	13.621.000	40,955	172,224	4,201	**330**
United States ..	53.531.000	75,978	1 304,265	15,84[illegible]	**705**
Pens and Pencils:					
United Kingdom .	791.000	6,025	1,450	241	**131**
United States ..	2,539,000	6,058	4,261	710	**419**
Printing and Publishing:					
United Kingdom ..	13,548,000	34,210	38,611	1,133	**396**
United States ..	147,757,200	258,434	297,763	1,154	**572**
Railway Carriages and Waggons:					
United Kingdom ..	9,850,000	27,105	30,407	1,126	**364**
United States ..	24,746,000	43,086	97,797	2,274	**574**
Silk:					
United Kingdom ..	5,345,000	30,710	18,867	608	**142**
United States ..	39,382,400	99,037	97,947	989	**398**
Soap and Candles.					
United Kingdom ..	12,707,000	15,596	16,938	1,092	**821**
United States ..	22,[illegible]97,600	13,538	29,159	2,160	**1,691**

A glance at the figures given shows that in boots and shoes, cardboard boxes, clothing, cotton goods, clocks and watches, cutlery and tools, etc., American production per worker is approximately three times as great as is British production per worker, and that the startling difference is accompanied by an almost identical difference in the horse-power used per thousand wage-earners. As boots and shoes, clothing, etc., are sold at approximately the identical wholesale prices in England and in the United States, and as the prices given in the British and American Census are wholesale prices, it cannot be doubted that production per man both in value and in quantity is about three times as great in America as it is in this country. It also follows that British production per man can be trebled by using American processes.

We can best compare industrial production per head in England and America by taking not merely the gross output, but also the net output per worker in the two countries .Such a comparison can easily be made with the help of the British and American Censuses of Production. Both Censuses furnish the value of the raw materials used in manufacturing and state the overhead expenses of each industry. By deducting the value of the raw materials used, rent, rates, taxes, salaries, etc., we arrive at the actual value produced by the workers themselves, and we can thus ascertain how much every British and American worker produces net by the work of his hands either per year or per week. The calculation indicated furnishes the following remarkable result given on p. 190.

While the lengthy table previously given shows the high importance of large individual production to the industries and to the nation as a whole, the following table shows the importance of large individual production

NET PRODUCE PER WORKER PER WEEK.

	In the United Kingdom.			*In the United States.*		
	£	*s.*	*d.*	£	*s.*	*d.*
Boots and shoes	1	7	4	3	10	0
Cardboard boxes	1	0	0	2	15	0
Butter and cheese	2	8	1	8	3	0
Cement	2	10	10	4	17	8
Clothing	1	3	11	4	7	4
Cocoa, chocolate and confectionery ..	1	12	3	4	18	5
Cotton goods	1	10	5	2	13	9
Clocks and watches	1	7	9	4	3	0
Cutlery and tools	1	8	1	4	1	6
Dyeing and finishing textiles . .	1	18	11	4	4	3
Gasworks	4	1	1	11	16	7
Firearms and ammunition	2	2	8	4	9	2
Gloves	1	11	2	3	10	9
Hats and caps	1	5	10	4	1	10
Hosiery	1	3	5	2	2	8
Leather tanning and dressing .	2	5	0	4	13	1
Lime	1	13	5	3	2	4
Brewing and malting .. .	6	7	3	19	10	5
Matches	1	13	0	7	3	1
Paint and varnish	3	16	2	12	9	3
Paper	2	2	8	5	3	5
Pens and pencils	1	9	8	4	5	9
Printing and publishing .. .	3	13	1	7	16	11
Railway carriages, etc . .	2	7	4	4	0	5
Silk	1	1	2	3	9	3
Soap and candles .	2	19	8	11	7	8

to the workers themselves It will be noticed that the net production per worker per week is about three times as great in the United States as in the United Kingdom, and in some instances it is much greater. Of the value actually produced by the worker, the larger part is paid to him in the form of wages, while a portion is retained in the form of profits by the manufacturer Now, it stands to reason that a worker cannot possibly earn more than the whole value of his work If he received the entire value of his output, the manufacturer would receive nothing for his trouble and risk and give up the business. If the worker received in wages more than the value added to the raw material by his work, the factory would soon be bankrupt. In 1907 English cardboard-box makers produced net £1 per week. Hence they could not possibly receive a larger wage than £1 per week, whether the factory was managed on ordinary capitalist lines or whether it was managed co-operatively or socialistically. It follows that the English cardboard-box makers could increase their wages only by increasing their output. Similarly the boot and shoe operatives, who actually added only £1 7s. 4d per week to the value of the leather and other raw materials used, could not possibly earn more than the slender amount which they produced per week. Of course, the cardboard-box makers, boot-makers, etc., might have struck for double wages, and might possibly have obtained them. However, as presumably all other workers would have secured a similar advance in wages, none would have been better off in the end. After all, the nation is a great co-operative society. The citizens exchange their productions. Prosperity consists not in high wages, but in adequacy of houses, furniture, food, clothes, etc. Wages in themselves mean very little. They are important only for what they will buy. If the building trade, the furniture trade, the clothing trades and agriculture produce much per head, there will be an abundance of house room, furniture, clothes and food, whether wages are high or low. If, on the other hand, production per worker is low, there will be a scarcity of house room, furniture, clothing and food, and the workers will be ill-clad and dissatisfied even if they should earn each £10 per day in wages. It follows that the British workers have pursued a phantom in endeavouring to benefit themselves by increasing wages and limiting output. They have hunted after the shadow and neglected the substance.

The inefficiency of the British industries compared with the American industries is by no means exclusively due to the workers who have endeavoured to limit output, but also to the manufacturers and to the Government. British employers have been too conservative. They have neglected new processes and inventions. They have relied for success rather on cheap labour than on the utmost efficiency in organisation and in mechanical outfit. These tendencies among masters and men have been encouraged by the attitude of the politicians who have constantly told us that England was the richest and the most efficient country in the world, who have failed to take an interest in economic matters because they were unduly interested in obtaining votes, and have encouraged labour in the suicidal policy of limiting output instead of enlightening the working masses. Happily, a better spirit is abroad The War has opened the eyes of employers and employed to the inefficiency of the British industries, to the need of progress, and to the necessity of vastly increased production per head.

Inefficient and insufficient production is noticeable not only in the British manufacturing industries, but in British coal-mining as well This will be seen from the following figures, which are taken from the *Coal Tables*, a British official publication.

TONS OF COAL PRODUCED PER ANNUM PER PERSON EMPLOYED.

Years.	*United Kingdom.*	*United States*	*Australia*	*New Zealand*	*Canada.*
1886-1890 ..	312	400	333	359	341
1891 1895 ..	271	444	358	388	375
1896 1900 .	298	494	426	441	457
1901 1905 .	281	543	437	474	495
1906-1910 .	275	596	462	470	439
1908	271	538	500	478	422
1909	266	617	388	456	400
1910 ..	257	618	449	478	453
1911 .. .	260	613	485	487	395
1912	244*	660	642	503	472

Strike Year.

This table gives a very disquieting picture. In 1886-1890 coal production per man was almost equal in the United Kingdom, the United States and the great Dominions. Since that time enormous improvements in the art of coal-getting have taken place, and in consequence of the mechanical and scientific progress made output per man in the United States and the Dominions has vastly increased. During that period of continued progress British coal production per man has steadily and enormously declined, so that production per man was in 1912 more than twice as large in the United States and in the great Dominions as it was in this country. Of course, in many cases the United States and the Dominions have thicker coal-beds lying at a lower depth than are to be found in the United Kingdom. Still, in view of the improvements in coal-getting, production per head should have increased in the United Kingdom as well. Its decrease is undoubtedly due to the policy of the coal-miners of increasing wages while restricting production. Coal is the bread of industry. It is the first raw material in all processes of manufacture. Its cheapness is of the greatest importance to all employers and their workers. Owing to the policy of restricting output and increasing wages, coal prices in Great Britain and elsewhere have changed as given in table on p. 194 during the period under review.

The policy of the British workers to make their productions scarce and dear has been terribly effective in the case of coal. During the period under review, while American, Australian and New Zealand coal has been cheapened notwithstanding a great increase in wages, English coal doubled in price. At the beginning of the period England had the cheapest coal. That advantage has been completely destroyed. It is noteworthy that American coal is far cheaper than British coal, although

American wages are far higher in the coal industries than are British wages. Obviously, highly paid workers can produce more cheaply than less well paid workers if they produce efficiently.

AVERAGE VALUE OF COAL PER TON AT THE PIT'S MOUTH.

Year	*United Kingdom*		*United States.*		*Australia.*		*New Zealand.*	
	s.	d.	s.	d.	s.	d.	s.	d.
1886 ..	4	10	6	4¼			–	
1887 . ..	4	9¾	6	6¼	9	2	10	10
1888 .. .	5	0¼	6	0	9	0	10	11
1889 .. .	6	4¼	5	3½	8	11	11	3
1890 .	8	3	5	2¾	8	6	11	0
1891	8	0	5	3½	8	9	11	4
1892 . .	7	3¼	5	4¾	7	11	11	3
1893 .	6	9½	5	4	7	5	11	1
1894 . ..	6	8	5	1	6	8	11	0
1895 .	6	0½	4	9¼	6	4	11	1
1896	5	10¼	4	9¼	6	2	10	10
1897 ..	5	11	4	7½	5	11	10	0
1898 . .	6	4¼	4	5	5	9	10	0
1899 . .	7	7	4	8½	6	1	10	0
1900 . ..	10	9¾	5	3¾	6	0	10	9
1901 .	9	4½	5	6½	7	7	11	0
1902	8	2¾	5	8¼	7	9	10	11
1903	7	8	6	7	7	4	10	9
1904 . .	7	2½	5	10¾	6	10	10	9
1905	6	11½	5	8	6	2	10	7
1906 . ..	7	3½	5	9½	6	3	10	7
1907	9	0	5	11½	6	10	[illegible]0	7
1908	8	11	5	11¾	7	4½	10	4½
1909 .. .	8	0¾	5	7½	7	6½	10	10½
1910	8	2¼	5	10¼	7	6½	11	1½
1911 .	8	1¾	5	10¾	7	5½	10	10¼
1912	9	0¾	6	1	7	6½	10	10¼

In transporting goods by railway and by inland waterway and in agriculture, the United States are as superior to the United Kingdom as they are in manufacturing and in coal-mining. If we compare British and American train loads and freights or British and American inland water transport and agriculture, we find that, with treble wages, carriage by land and water is far cheaper in the United States than it is in this country; that, with treble wages, meat, bread-corn, vegetables, fruit, etc., are produced far more cheaply in the Great Republic than in these isles. It cannot be doubted that by Americanising these industries American wages can be paid to the workers and an American standard of living be secured for them. Moreover, it cannot be doubted that the trebling of production and of wages will lead to the trebling of profits.

If we compare the accumulation of capital in the United States and Great Britain, we find an infinitely more rapid progress in the former country. The trebling of wages, if accompanied by the trebling of production, is feasible and it is bound to lead to the trebling of profits. Out of these vastly increased profits and wages the increased taxes required by the War Debt can easily be found. That can be shown by an elementary piece of calculation. A man who before the War made a profit of £1,000 paid, let us say, £250 in taxation. The trebling of taxation would reduce his true income from £750 to £250—to one-third the pre-war figure. If, on the other hand, by trebling his output he should increase his net profit to £3,000, trebled taxation would reduce his true income to £2,250. Notwithstanding trebled taxation his true income would have trebled, and out of his trebled revenues he could easily provide for the enlargement of his works and their improved mechanical output.

I have shown that American output per man in field, factory, workshop, in railroading, etc., is about three times as great as is British output per man. Now, it must not be thought that America has reached the zenith of efficiency. In America, as elsewhere, progress knows no limit. In the United States, as over here, there are highly efficient works, moderately efficient ones, and very inefficient ones. By merely approaching the American average of efficiency we can treble production, wages and the earnings of capital. By bringing production up to the higher level of American efficiency we can quadruple and quintuple output, wages and profits.

The bulk of the increased productions will find the readiest and the best market in the Homeland. As the nation is a great co-operative society, increased production and wages will bring about vastly increased consumption The masses of the people will become better housed, better furnished, better clad, better fed, better educated, and will have more leisure, more cleanliness, more amusements, etc The British workers, like their American colleagues, will dress like gentlemen, smoke cigars and take occasionally lengthy holidays The British workers, like their American colleagues, will become house-owners and capitalists The old drudgery and dirt and poverty and ignorance of the working classes will disappear

The British workers have received during the War some foretaste of Americanised labour conditions Their wages have increased very greatly, and so has output per worker Before the War the United Kingdom had, according to the Census, about 18,000,000 workers Of these, about 6,000,000 have joined the army and navy, while about 3,000,000 are engaged in producing munitions. The remaining 9,000,000 are employed upon ordinary peace-work Now, these 9,000,000 on peace-work produce approximately as much as did the 18,000,000 before the War, for the consumption of the people is approximately identical with pre-war consumption The upper and the middle classes have no doubt restricted the consumption of goods of every kind, partly owing to the appeals for economy, partly owing to increased taxation. On the other hand, the workers have greatly increased their purchases. At no time in men's recollection have the working masses been better dressed and appeared better fed. At no time has there been such a keen demand for pianos, furs, jewellery, furniture, etc. At no time have the places of amusements been more crowded. That experience will not be lost upon the workers.

The best market for vastly increased production will be the Home market The second best will be the Empire and the rest of the world market The Imperial market is susceptible of indefinite expansion. In a few decades Canada may be as populated and as wealthy as the United States are at the present moment By a wise economic policy, by the development of the Empire, the British workers can secure vast prosperity to themselves and to their country.

It need not be thought that the trebling of production would mean the trebling of exertion on the part of the worker. It is an old experience that the greatest output requires the least exertion, while the smallest output calls for the greatest amount of labour. A smith, with a heavy hammer worked by hand, produces little per hour at infinite exertion. Another smith, controlling a few levers, can, with a steam-hammer or a hydraulic hammer, produce a hundred times as much without any exertion. A man ploughing by hand with a one-share plough will, with a great expenditure of energy, do only a tithe of the work which can be done by a man sitting on a tractor which pulls a ten-share plough. The machine, far from being an enemy of labour, is labour's best friend. The machine, far from being the working-man's enemy, is his best friend, for the machine is to the worker what the horse is to the carter. It is far easier to direct a horse than to carry the weight which it pulls.

The efficiency of a carter is greatest when horse and man willingly co-operate. If horse and man disagree, if the horse is ill-treated and retaliates on the carter and smashes up the cart, both suffer. It is sincerely to be hoped that capital and labour, employers and employed, will learn at last that they can benefit themselves most by mutual understanding, fairness, generosity, justice, co-operation. The policy of mutual exploitation and of mutual suspicion is an extremely short-sighted one. Strikes are quite unnecessary. It should not pass the wit of man to devise an organisation whereby industrial disputes might peacefully be settled on equitable principles. Fantastic schemes evolved by unpractical dreamers will not increase the prosperity of the workers and will not enable Great Britain to pay off the debt created by the War. If we wish to achieve both these aims we had better rely on experience and common sense than upon poetical imagination. The Americans have solved the problem of economic organisation. In the United States capital and labour, employers and employed, are immensely prosperous.

The immediate necessity is not to create a theoretically perfect, an ideal organisation of the nation, but to provide for the urgent needs of the hour. These can obviously be provided, not by reverting to the policy of restricting output or by pitting capital against labour and labour against capital, but by a harmonious co-operation of the two, by equitable distribution of profit and especially by the greatest possible increase of production. Without high production there cannot be high consumption. The most precious thing in a nation is the productive labour of the people, and the worst form of national waste is the waste of labour. By trebling output we shall be able to treble the prosperity and the happiness of the workers and of the nation as a whole, and out of a trebled national income we can easily pay the cost of the War, however large it may be.

CHAPTER VIII

THE PROBLEM OF THE TARIFF—WOULD A TARIFF HARM LANCASHIRE?[*]

By far the most important British manufacturing industry is the gigantic cotton industry. During the last few years preceding the War it has produced on an average about £120,000,000 worth of cotton goods per year, of which approximately 80 per cent., or £100,000,000, were exported. Great Britain exports more cotton goods than all the countries of the world combined. At first sight Great Britain's supremacy in the cotton industry appears unchallengeable.

According to the American Census Bulletin 113 there were in the world in 1911 137,792,000 active cotton spindles. Of these the United Kingdom had 54,523,000, while the United States had only 29,515,000 spindles. In 1911 Great Britain had 39·46 per cent. of the spindleage of the world, while the United States had only 21·1 per cent. The United States exports of fully manufactured cotton goods come to only £4,000,000 or £5,000,000 per year. The spindleage of the British cotton industry is almost twice as large as that of the American cotton industry, while the British export trade in cotton goods is about twenty times as large as the American export trade. However, closer examination of the cotton industry in the two countries reveals the fact that the

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[*] From *The Nineteenth Century and After*, August, 1912.

United States cotton industry is far more powerful than it is generally believed to be in Great Britain.

Although the United States have only a little more than half as many spindles as the United Kingdom, they consume far more raw cotton than does Great Britain, the figures being as follows:

CONSUMPTION OF RAW COTTON IN 1911.

	Bales.
United States	4,705,000
United Kingdom	3,782,000

The fact that the United States, notwithstanding their very marked inferiority in spindles, consume much more cotton than the United Kingdom seems very strange. Englishmen who are insufficiently acquainted with the American cotton industry glibly explain that the Americans with fewer spindles use more cotton than the British because the United States, having an inferior cotton industry, make chiefly the coarser yarns, while Great Britain, having the cream of the cotton trade of the world, specialises in the finest yarns and tissues, leaving the coarse manufacture to other nations. That explanation is currently given, and it seems very plausible, but unfortunately it is not quite correct. The American and the British cotton spindles are implements of different character. Great Britain uses nearly exclusively mule spindles, while the United States rely almost entirely on ring spindles. Vast quantities of yarn, identical to that which is made on ring spindles in America, is made on mule spindles in Great Britain. Employed on the same yarn, ring spindles consume 50 per cent. more raw cotton and produce 50 per cent. more yarn than do mule spindles. Ring spindles are labour-saving spindles. Consequently they are preferred not only by American cotton spinners, but by German and Japanese cotton spinners as well.

It seems that British conservatism is largely to blame for the small percentage of ring spindles running in Lancashire. Ring spindles represent greater output and greater mechanical efficiency. The American cotton industry seems to be more efficient than the British cotton industry, not only in the spinning department, but in the weaving department as well, as will be shown later on.

Let us now test the often-heard assertion, "The British cotton industry is the largest in the world." According to the number of spindles used, the British cotton industry is indeed the largest in the world. According to the quantity of cotton used, the United States cotton industry is the largest in the world. Should we, then, measure the importance of the cotton industry by the spindleage or by the consumption of raw cotton ? The best measure of the importance of an industry is evidently not the quantity of machinery employed, nor the quantity of raw material worked up, but the value of its finished productions. As regards Great Britain we have no exact official figures regarding the value of the output of the cotton industry, but merely unofficial estimates by experts, which are fairly reliable. According to these the total value of the cotton goods produced in Great Britain should in 1909 have amounted to about £100,000,000 or £110,000,000 at factory. The United States combine with their census of population a census of production. According to the last census—that of 1910—the value of the cotton goods produced by the United States in the year 1909 was no less than $628,391,813, or £125,678,365.

There can be no doubt that the American cotton industry has overtaken the British cotton industry, not only in the quantity of raw material worked up, but also in the value of cotton goods manufactured. The outlook for the Lancashire industry is serious. In 1880 Great Britain made considerably more steel than the United

States. Now the United States make four times as much steel as Great Britain. The United States cotton industry has been growing, and continues growing with incredible rapidity, while ours is growing but slowly. It is to be feared that before long America's supremacy in cotton manufacturing may be as great as her present supremacy in manufacturing steel, unless we take suitable steps in time.

The prosperity of an industry may be measured by its progress and expansion. How wonderfully the United States cotton industry has flourished and increased will be seen from the following figures:

Year.	*Consumption of Raw Material.*	*Value of Cotton Goods Produced.*
	Bales.	*Dols.*
1860	841,975	115,681,774
1870	1,026,583	177,489,739
1880	1,865,922	192,090,110
1890	2,604,491	267,981,724
1900	3,603,516	332,806,156
1910	4,516,779	628,391,813

Since 1860 both the consumption of cotton in the United States and the value of the goods produced from it have grown more than fivefold. During the same period the value of the cotton goods produced in Great Britain has about doubled, while the consumption of raw cotton has less than doubled. In the last decade, 1900-1910, alone the consumption of raw cotton in the United States has grown by almost a million bales, while the value of the cotton goods produced has very nearly doubled. The progress of the United States cotton industry during the last decade bodes ill for the cotton industry of Great Britain.

The frequently heard taunt that the United States produce only the coarse cotton fabrics which Lancashire does not care to manufacture is quite unjustified. The American cotton industry works practically exclusively for the home market. It works for a prosperous nation which demands goods of quality. The British cotton industry, which exports four-fifths of its produce, works chiefly for foreign nations. Now, two-thirds of the British cotton exports go, not to the wealthy people in Europe, North America, and Australia, but to the poverty-stricken nations of Asia, to India, China, and Asiatic Turkey, to nations which can afford to buy only the cheapest and the flimsiest materials. A visit to the United States shows that the cotton goods generally sold in that country are certainly not inferior in quality to those sold and worn in Great Britain. As less than 2 per cent. of the cotton cloth sold in the United States is imported from abroad, it is clear that the bulk of the cottons which one sees in the shops are of American manufacture, and that the British cottons made for the British market and the American cottons made for the American market are approximately of equal quality.

The American cotton industry shows two remarkable tendencies: the tendency to grow at a truly astonishing pace and the tendency to manufacture the finest goods to an ever greater degree. Between the years 1899 and 1909 the production of cotton yarn in the United States increased from 1,467,565,971 pounds to 2,037,653,722 pounds, or by 39 per cent. However, while the production of coarse yarn (No. 20 and under) increased by only 19·2 per cent., that of medium numbers (Nos. 21 to 40) increased by 60 per cent., and that of fine yarns (No. 41 and over) by no less than 103·7 per cent. In 1899 the coarse yarn constituted 58 per cent. of the total production, but in 1909 it constituted only 49 per cent. On the other hand, the proportion of medium yarn increased from 37 per cent. in 1899 to 42·5 per cent. in 1909, while *that of fine yarn* increased from 5·2 per cent. to 7·7 per cent. during the same period. The progress in quality has been as remarkable as the progress in quantity. The finest cottons sold in the United States, some specialities excepted, are, as I have been told, of American make.

How greatly the growth of the American industry has benefited American labour will be seen from the following remarkable table which is compiled from the American censuses:

Year.	*Number of Workers in Cotton Industry.*	*Total Wages per Year.*	*Wages per Worker per Year.*
		Dols.	*Dols.*
1860 ..	122,028	23,940,108	196.00
1870 ..	135,369	39,044,132	288.00
1880 ..	174,659	42,040,510	240.00
1890 ..	218,876	66,024,538	301.00
1900 ..	297,929	85,126,310	285.00
1910 ..	378,880	132,859,145	350.00

The meaning of the foregoing table will be clear by comparison with Great Britain. From the British censuses and other Government publications I have extracted the following figures:

NUMBER OF WORKERS IN THE COTTON INDUSTRY.

In Great Britain.		*In the United States.*	
1881 ..	.. 487,777	1880 ..	.. 174,659
1891 ..	.. 546,015	1890 ..	.. 218,876
1901 ..	.. 529,131	1900 ..	.. 297,929
		1910 ..	.. 378,880
Difference	.. + 41,354	Difference	.. + 204,221

As the figures relating to the British cotton trade in 1911 are not yet available, I have given those for 1901. It will be noticed that the number of British cotton workers increased by 58,000 during the decade 1881-1891, and decreased by 17,000 during the decade 1891-1901. Since 1901 the number of British cotton workers may have remained stationary, though probably it has decreased. While during the decade 1891-1901 the number of British cotton workers *decreased* by 17,000, the number of American cotton workers *increased* by 79,000 during the corresponding decade 1890-1900. If we assume that the number of British cotton workers has remained stationary since 1901, we come to the extraordinary conclusion that the American cotton industry, which, measured by the quantity of raw material used and the value of goods produced, has an output approximately 25 per cent. larger than that of Great Britain, produces that larger and more valuable output with 150,000 fewer workers. If we divide the value of the output by the number of men employed, it appears that the output of the cotton workers in the two countries comes, in round figures, to £200 per worker per year in Great Britain and to £340 per worker per year in the United States. These extraordinary figures confirm the fact that the cotton industry of the United States possesses a far greater efficiency than the cotton industry of Great Britain.

The very valuable Report on Cotton Manufactures (Doc. 643, 62nd Congress, 2nd Session) published by the United States Tariff Board, an absolutely impartial American Government institution, contains a table giving the earnings of British and American cotton workers, and these compare, in the most important grades, as follows:

	United Kingdom.	*Northern States.*	*Southern States.*
Weavers, male (piecework) ..	100.00	155.5	132.9
Weavers, female (piecework) ..	100.00	178.6	142.5
Mule spinners, medium	100.00	147.3	—
Mule spinners, fine	100.00	135.0	—
Mule spinners, very fine	100.00	145.0	—
Ring spinners, female (time) ..	100.00	182.7	—
Ring spinners, female (piece) ..	100.00	183.4	128.8
Spoolers, female (time)	100.00	204.8	170.5
Spoolers, female (piece)	100.00	182.3	131.2
Fine and jack frame tenders (time)	100.00	203.0	—
Fine and jack frame tenders (piece)	100.00	179.8	154.5
Reel tenders, female (time) ..	100.00	256.9	—
Reel tenders, female (piece) ..	100.00	293.3	—

The American cotton industry has been a very satisfactory industry to the workers. Between 1860 and 1910 the number of workers has more than trebled, and the wage paid per worker has practically doubled. Besides, the proportion of men employed in the American cotton industry has been constantly increasing, while that of the women and children has been consistently shrinking. The official record is as follows:

PERCENTAGE OF UNITED STATES COTTON WORKERS.

Year.	*Men over Sixteen Years.*	*Women over Sixteen Years.*	*Children under Sixteen Years.*
	Per Cent.	*Per Cent.*	*Per Cent.*
1870 ..	31·60	51·45	16·95
1880 ..	35·36	48·42	16·22
1890 ..	40·58	48·71	10·71
1900 ..	45·09	41·52	13·39
1910 ..	50·92	38·70	10·38

In 1910 the staff of the American cotton industry was composed of 192,930 men, 146,644 women, and 39,306 children under sixteen years of age. The British cotton industry employs fewer men than the American cotton industry, but it employs about 150,000 more women. The study of the British decennial censuses shows that the British cotton industry is becoming more and more a women's industry. This appears from the following figures:

PERCENTAGE OF FEMALE WORKERS IN THE BRITISH COTTON INDUSTRY.

	Per Cent.		Per Cent.
1861	56·7	1891	60·9
1871	59·8	1901	62·8
1881	62·0		

While in America the proportion of women workers has constantly and very rapidly been shrinking, the proportion of women workers in Great Britain has been constantly and rapidly increasing. Women should work, not in the factory, but in the home. The fact that we have been gradually increasing the proportion of women workers at the very time when the Americans have been greatly reducing it, and that the proportion of women workers is almost twice as great in Great Britain as it is in America, is very humiliating to this country.

The fact that the British cotton industry is far less efficient than the American cotton industry is noticeable not only in the spinning department, as has already been shown, but in the weaving department as well. On this point the very reliable and impartial Report on Cotton Manufactures, published by the United States Tariff Board in 1912 states:

> English looms run somewhat faster than the looms in this country, but the number of looms tended per weaver is usually much less than here. This is in marked contrast to the woollen industry, where the number of looms

tended is about the same in the two countries. In the case of plain looms (not automatic) the English weaver seldom tends more than four looms, while in this country a weaver rarely tends less than six, and more frequently eight, or even twelve, if equipped with "warpstop motions" Furthermore, English manufacturers make little use of automatic looms, of which there were less than 6,000 in May, 1911, in the whole of England, while in the United States there are well over 200,000. It is estimated that there are now about 10,000 of these looms in use in England, and about 15,000 on the Continent. Where automatic looms can be used, a single weaver commonly tends twenty looms, and sometimes as many as twenty-eight The result is that whereas the output per spinner per hour in England is probably as great as, or greater than, in this country, the output per weaver per hour is, upon a large class of plain goods, less, and in the case where automatic looms are used in this country and plain looms in England it is very much less.

Several reasons are advanced for the delay in the more general adoption of the automatic loom in England. For one thing, the automatic loom costs about two and a half times the ordinary plain loom, and this has deterred many English mills already equipped with plain looms from adopting them. Again, English mills do not run such a large number of looms on a single-standard fabric as do American mills, and the automatic loom has not been found so suitable as plain looms for the varied Lancashire trade in dhoties (loin-cloths) and other fancies. Furthermore, the automatic loom requires stronger and better warp yarn than the plain loom, for the breakage of a single warp thread stops the loom. The American mills use strong ringspun warp yarns; while a large portion of the English mills, producing mainly for the poorer classes of the Orient and other regions, have to size heavily to make goods cheap enough, and they ordinarily use a much lower grade of yarn than would American mills for fabrics that pass under the same trade name. The warp yarns used in the bulk of English cloths are mule spun; and since they are soft twisted to enable them to take up a larger amount of sizing, and to give the required feel to the cloth, they are not so suited to the automatic loom as are the stronger American yarns.

An additional reason for the limited use of the automatic looms appears to be the objection to them of the labour unions, which have been afraid that they would be used to displace labour and to throw more work on the weaver without proportionately increasing his earnings

When I was in Boston I made the acquaintance of Mr. Eben Draper, a partner in the celebrated Draper firm, which manufactures these wonderful automatic looms. When I asked whether many of his looms were sold in Lancashire he smiled and said: "The English are conservative people. They run only a few. I believe the masters find them too dear, and the men won't work them I suppose they will begin buying our looms when they have lost their trade" His opinion is confirmed by the American Government authorities.

I have watched the performance of plain and automatic looms, and it seems to me perfectly inconceivable that the latter should be almost unknown in Lancashire.

The cost of carriage of raw cotton from the United States to England is so very small that raw cotton is practically no dearer in Lancashire than in the textile districts of the United States. On the other hand, the establishment costs—that is, the costs of the necessary buildings, machinery, etc—are very much higher in America than in England. The principal ingredient in the cost of every article consists in the wages paid in its production. The wages of the American brickmakers, bricklayers, labourers, founders, engineers, etc., are twice, and more than twice, as high as are British wages. Herein lies the reason that the establishment expenses are so much higher in America than in Great Britain. On this point the Report already mentioned states:

The cost of the building for the spinning mill is $3.27 per spindle in the United States, as compared with $2.40 per spindle in England. The textile machinery for the spinning mills amounts to $4.84 per spindle in this country, and $2 80 per spindle in England. The total cost of the spinning mill complete in the United States is $543,401.04, against $396,367.77 in England, or per spindle the cost is $10.83 in this country and $7.92 in England, the latter being about 73 per cent. of the total cost in the United States.

Comparing the weaving mills, the cost of the building is shown to be $2.88 per spindle in the United States and $1.58 per spindle in England The textile machinery for the weaving mill amounts to $1.70 per spindle in this country and $1 16 per spindle in England. The total cost of the weaving mill complete in the United States is $331,178.00, as compared with $240,284 70 in England, or, on a spindle basis, this is $6 60 in the United States and $4 80 in England, the latter being about 73 per cent. of the total cost of the weaving mill in the United States.

Referring to the grand total cost of spinning and weaving mills, it will be seen that in the United States the cost is $17 43 per spindle; as compared with $12.72 per spindle in England, the cost in England being 73 per cent. of the cost in the United States.

If we now compare the general conditions under which the British and American cotton industries work, we find that, while the price of raw cotton is practically the same in the two countries, the American manufacturers pay far more for their buildings, for their machinery, and especially for their labour, than do British manufacturers. At first sight one would, therefore, think that the greater cost of buildings, machinery, and labour in America should make American cotton goods far dearer than British cotton goods Comparison of American and British shop prices seem to confirm this conclusion. Bought retail, American cotton goods are, indeed, considerably dearer than British cotton goods. However, closer examination reveals the surprising fact that, notwithstanding the far greater establishment and labour costs involved, American cottons are no dearer if bought wholesale than are British cottons. On this point the Report quoted states:

> The conclusion that under present methods of production on many plain fabrics the cost of production is not greater in this country is also borne out by a comparison of English and American mill prices A comparison of such prices on a large variety of these fabrics in England and the United States for the date July 1, 1911, shows that in the case of plain goods the American price at the mill was in no case much above the English mill price, while in the majority of cases it was lower. It should be noted, however, that American prices of this date, relative to the price of cotton, were somewhat lower than normal. The English prices are the regular quotations for the home market

How is it that, notwithstanding the far greater establishment costs and the far higher wages paid in America, the American mill price of cottons was found to be "in no case much above the English mill price, while in the majority of cases it was lower"? The American Government Report answers that question as follows:

> In the case of a large variety of plain goods, the labour cost of turning the yarn into cloth in the United States is no greater, and in some cases lower, than in England. For cloths woven on automatic looms this is especially the case, but on certain classes of fabrics the same holds true for plain looms, due to the greater number of looms per weaver in this country. This does not necessarily indicate any individual superiority on the part of the American weaver. It is a matter of difference in industrial policy, and it explains the difference in the methods of production which prevail at the present time. Where the automatic loom is now used in England a weaver frequently tends twenty looms, as is done in the United States.

Finishing is a very important process in cotton manufacture. Finishing includes the processes of bleaching, printing, dyeing, mercerising, etc. But finishing also is no dearer in America than in Great Britain, notwithstanding the greater establishment expenses and higher labour costs. On this point the authority mentioned states:

> A comparison of sixty specific samples for which finishing data were obtained shows that in most cases the differences between the charges in the two countries were slight, but that the American charge was slightly lower on most of the samples.

The explanation of the curious fact that America produces cottons as cheaply as Great Britain, and in many instances more cheaply than Great Britain, although establishment costs and wages are far higher in America than Great Britain, may be summed up in two words: greater efficiency. I think the foregoing official statements, which are based on a large number of individual comparisons, absolutely prove that, compared with the American cotton industry, the British cotton industry has stood still, and that it can learn much from the United States.

The fact that the American retail prices of cotton goods are higher than British retail prices is shown in the American Government Report to be caused by the different methods of distribution obtaining in the two countries, and by the differences in the profits made by middlemen and retailers. English cottons are distributed over the narrow territory of England, and are sold by poorly paid clerks and assistants The American cottons are sold over an enormous territory, and therefore require far heavier charges for freight and all the other expenses of distribution. Besides, the American sales-men and saleswomen receive far higher wages than their ill-paid British colleagues.

It is generally believed in Lancashire that the British cotton industry is the most efficient cotton industry in the world, and that it has nothing to learn from other nations. That belief is very largely based on the erroneous idea that practically all other nations manufacture cotton with English machinery When I talked to leading Lancashire men about the greater efficiency of the American cotton industry, they told me that the American could not be more efficient than the English industry because the American cotton men employed chiefly British machinery. During my visit to America I did not see any British machinery in the American cotton mills and factories which I was allowed to inspect, and I was told that the proportion of English machinery used was practically nil.

From the Report on Cotton Manufactures by the United States Tariff Board, it appears that more than 99·7 per cent. of the looms used are of American make, and only 0·3 per cent. of foreign make Of the ring spindles, 99·9 per cent. are of American make, and 0·1 per cent. are of foreign make. These two items, by far the most important, are almost exclusively furnished by American makers. Of the roving or jack spindles, 85·8 per cent. are of American, and 14·2 per cent. of foreign manufacture. Of the cards, 83·7 per cent are of American, and 16·3 of foreign make. Of the mule spindles, 83·1 per cent. are American made, and 16·9 per cent. are imported. It appears, therefore, that the American cotton industry is run almost exclusively by American machinery. Only in the older mills and factories are English machines to be found. American cotton manufacturers with whom I discussed the subject were unanimous in praising the superiority of the American machines, and I think

British cotton-makers will be wise in studying the American machines and general factory organisation and arrangements

Hitherto Lancashire has opposed Tariff Reform with the cry, "Tariff Reform will destroy the British cotton trade" Lancashire men have argued that Tariff Reform by raising wages would raise the cost of production, that the increased cost of production would find its expression in higher prices for cottons; and that the higher prices of cotton goods would bring about the loss of a large part of our great export trade The fear of the Lancashire men seems scarcely justified in the light of the facts given in the foregoing pages; for I have shown, by means of unimpeachable expert evidence, that the price of the output of the American cotton industries is, as the Official Report puts it, "in the case of plain goods in no case much above the English mill price, while in the majority of cases it is lower" I have also shown by means of unimpeachable evidence that the American cotton industry pays about 40 per cent more for buildings and machinery and from 50 per cent. to 100 per cent. more for wages than does the British cotton industry Now, I do not think that the most passionate, the most narrow-minded, or the most reckless defender of Free Trade is prepared to assert that Tariff Reform will raise the cost of buildings and machinery in Lancashire by 40 per cent., and that it will raise British cotton wages by from 50 to 100 per cent. But let us assume for argument's sake that Tariff Reform would have this twofold effect. Would it then "destroy" the British cotton industry or, at least, the British export trade in cottons? If the American cotton industry can produce cotton goods partly at about the same price as England, and partly at lower prices than England, although it pays about 40 per cent. more for buildings and machinery and from 50 to 100 per cent. more for wages than the English cotton industry, it is perfectly clear that Tariff Reform will not destroy the British export trade in cottons by raising the price of cotton goods, even if it should increase the cost of our buildings and machinery by 40 per cent. and the wages of our cotton operatives by from 50 to 100 per cent, provided the British cotton industry was run on American lines To put the matter in other words, one might say that if we made our cotton goods in accordance with American methods we could afford to pay 40 per cent. more for buildings and machinery, and from 50 to 100 per cent. more for wages, without being compelled to raise the prices of cotton goods to the consumer. However, Tariff Reform would not only not destroy our cotton industry, but would greatly benefit it. The present outlook for the Lancashire cotton industry is uncertain and distinctly disquieting. India and China are Lancashire's best customers. The Japanese cotton industry consumes considerably more than one million bales of cotton per year, and works with extremely cheap labour. It is very rapidly expanding, and, according to the reports of our Consuls in China, it is rapidly ousting the Lancashire cotton industry from the Chinese market. The Japanese have lately begun to encroach upon our Indian market as well.

As very few people are aware how wonderfully the Japanese cotton industry has progressed, and how seriously it is threatening the British cotton industry in neutral markets, especially in the markets of the Far East, I would give a few figures which should be of great interest not only to British cotton men, but to all who have the prosperity of British manufacturing industries at heart.

JAPANESE COTTON INDUSTRIES.

Year.		*Imports of Raw Cotton.*	*Exports of Cotton Yarn.*	*Exports of Shirtings.*
		Yen.	*Yen*	*Yen.*
1891	..	6,998,534	7,873	None
1894	..	19,103,923	955,530	None
1897	..	43,122,263	13,490,197	346,036
1900	..	58,500,002	20,589,263	1,754,411
1903	..	68,206,725	31,418,614	2,424,253
1906	..	81,293,860	35,303,526	7,353,713
1910	..	157,823,603	45,346,964	6,541,873
1913	..	231,480,883	70,997,538	11,198,348

Year.		*Exports of Cotton Drill.*	*Exports of Underclothing.*	*Exports of Towels.*
		Yen.	*Yen.*	*Yen*
1894	..	None	None	None
1897	..	None	76,337	109,773
1900	..	None	235,056	356,322
1903	..	215,883	785,697	953,363
1906	..	864,837	2,563,972	2,174,962
1910	..	5,083,185	6,011,532	1,838,117
1913	..		8,847,418	2,641,576

A yen is equal to 2s. 0½d.

In 1877 the Japanese Government placed orders in England for machinery sufficient to start several small experimental cotton spinning mills in different parts of the country. In 1882 the first joint-stock cotton spinning mill was organised at Osaka, with a mill equipment of but 10,500 spindles. Since then the development has been rapid. By 1890 there were 277,895 spindles in the country. In 1900 there were 1,320,988 spindles: and in 1911, according to the Statistical Handbook of the Japanese Cotton Spinners' Association, there were 2,099,764 spindles.

British cotton spinners and weavers speak more often of the cotton industries of Austria-Hungary, Belgium and Switzerland than of those of Japan. Yet the Japanese cotton industry alone consumes as much cotton as these three highly developed European countries combined. The United States Census Bulletin 113 supplies the following figures:

CONSUMPTION OF RAW COTTON IN 1911.

	Bales.
Japan	1,060,000
Austria-Hungary	749,000
Belgium	217,000
Switzerland	100,000

Twenty years ago the Japanese had practically no cotton industry, and ten years ago they had practically no export trade in cotton manufactures. Since then Japan has become one of the most important cotton-manufacturing countries in the world. She has practically a monopoly of the Japanese home market, and her exports have increased in a truly startling manner, as is shown above. Japan's importance as an exporter of cotton yarns will appear from the following figures, which are taken from the American Tariff Board Report:

EXPORTS OF COTTON YARNS IN ORDER OF THEIR IMPORTANCE IN 1910.

	Dols.
United Kingdom	64,908,306
British India	29,130,162
Japan	22,582,788
Germany	7,873,754

In the exportation of cotton yarn, Japan, which but a few years ago had no cotton industry, occupies now the third place among the nations of the world. In 1894 she exported 955,530 yen of cotton yarn, and in 1910 she exported 45,346,964 yen of cotton yarn.

To which countries does Japan export her cotton goods? That question is answered as follows by the official statistics of Japan:

JAPAN'S EXPORTS OF COTTON YARNS TO CHINA.

	Yen.
1894	876,805
1904	24,145,213
1910	40,747,662
1913	60,095,834

JAPAN'S EXPORT OF COTTON TOWELS TO INDIA.

	Yen.
1903	18,167
1910	349,345
1913	503,090

JAPAN'S EXPORTS OF COTTON UNDERCLOTHING TO INDIA.

	Yen.
1903	455,758
1910	4,390,491
1913	4,734,432

China used to buy her cotton yarn from Great Britain and India. Since 1894 Japan's yarn exports to China have grown seventyfold, and to-day Japan has, in yarn practically the monopoly of the Chinese market. Mr. Alfred B. Shepperson, the great American authority, wrote in his book, *Cotton Facts*, with which every cotton manufacturer is familiar:

> For the lower kinds of yarn (say up to twenty) the Japanese mills practically control their own and the Chinese markets against the competition of England and India, and will continue to do so. I think Japan's exports of cotton manufactures will continue to increase. Her mills, so far, have manufactured chiefly the lower grades of yarns and goods, but there is no reason why they should not successfully compete with Europe in the manufacture of better descriptions.

As the Japanese mills are usually run during twenty two hours every day, and as there are two sets of operatives working eleven hours per day for daily wages which range from sixpence to a shilling for grown-up persons, Japan's competition in the Far Eastern markets is bound to become extremely menacing to Great Britain as soon as the Japanese cotton manufacturers have succeeded *in extending their industries in accordance with their wishes.* How severely the British cotton industry is already pressed by Japan in the Far Eastern markets, and especially in China, Manchuria and Korea, which lie nearest to the shores of Japan, is apparent from the Reports of the British Consuls. The Report from Korea, published in 1911, states:

> The main feature revealed by a study of the figures is the headway made in 1910 by Japanese, as compared with British, goods. Thus, the total imports of coarse sheeting and grey shirtings increased by £93,000—entirely accounted for by Japanese imports—while British goods declined slightly.

In the Consular Report for 1910 on Newchang we read:

> My predecessor called attention in his Report for 1909 to the pressure of Japanese competition, and the returns for 1910 bear eloquent testimony to the pertinency of his remarks. While Japanese articles have increased in almost every line, those of British and American origin have been imported in reduced quantities and values. Thus, we have Japanese grey shirtings 14,501 pieces in place of 9,700 pieces in 1909 and 1,800 in 1908, while American shirtings have fallen from 153,331 to 137,005 pieces, though at an advanced price, and British from 112,370 to 85,850 pieces. Japanese sheetings were 151,400 pieces in 1908, 185,585 pieces in 1909, and 244,544 pieces in 1910; American sheetings were 601,541 pieces in 1909, but only 325,590 pieces in 1910. British sheetings were 26,115 pieces in 1909 and 11,350 pieces in 1910. In drills a similar phenomenon is observable.

Many similar Reports from British Consuls might be quoted which show that the Japanese cotton manufacturers are ousting the British from the Chinese markets.

What is the reason of Japan's success? The answer is supplied by Mr. H. H. Fox, the Acting Commercial Attaché to His Majesty's Legation at Pekin. He wrote in his Report on China for the year 1910:

> The two outstanding features in the trade of cotton piece goods in 1910 are the serious shrinkage in the imports of British and American plain fabrics, largely due to the high prices prevailing for American cotton and the increased import of Japanese cotton goods, which could be laid down in China at prices ranging from 25 per cent. to 40 per cent. less than Manchester goods The decline is most marked in the case of British shirtings, which decreased by some 2,000,000 pieces, white sheetings 2,000,000 pieces, and American sheetings and drills 2,400,000 pieces, a total decline in plain staples of 6,000,000 pieces.

Continuing, the Consul gives a table showing that between 1909 and 1910 the importation of British cottons into China *decreased* by 4,180,322 pieces, whilst the importation of Japanese cotton goods into China has, during the same period, *increased* by 993,666 pieces. If the Japanese can, as the Commercial Attaché reports, lay down their piece goods in China "at prices ranging from 25 per cent. to 40 per cent. less than Manchester goods," British competition is, of course, quite useless and futile. It is merely a question of time when Japan will have the monopoly of the Chinese market, not only in cotton yarn, but also in cotton cloth.

So far, Japan has concentrated her efforts upon manufacturing for the home market and exporting goods to China, Korea, and Manchuria, which are nearest to her shores. Hitherto she has sent only a few things to India, but in India also her sales are increasing at an ominous rate, as has been shown in the foregoing. In 1903 she sent cotton towels to India to the value of 18,167 yen.

In 1910 she had increased these exports to 349,345 yen. Japan's exports of cotton underclothing to India have increased from 455,758 yen in 1903 to 4,390,491 yen in 1910. British India is the most important foreign market of the British cotton industry. If Japan can lay down her cottons in China "at prices ranging from 25 per cent. to 40 per cent. less than Manchester goods," and thus make British competition hopeless and futile, she can presumably also sell her cottons at prices ranging from 25 per cent. to 40 per cent. less than Manchester goods in India. Under free competition it is only a question of time when Japan will have a monopoly of the Indian market similar to that which she is creating for herself in the Chinese markets. At present the Japanese cotton industry is expanding so rapidly that it seems likely that Japan will swamp India with her cottons before long.

Lancashire has lost the Japanese market It will probably lose the Chinese market within a few years, and it will eventually lose the Indian market as well unless the Indian market is reserved to Lancashire under a system of Imperial preferences That is its only hope. Lancashire can compensate itself for the probable loss of the Chinese market by preferential arrangements for her cottons not only with India, but with all the other British Dominions and Colonies, which, with their rapidly growing population, are bound to be ever more valuable customers

Tariff Reform would benefit Lancashire not only in the foreign markets, but also, and most particularly, in the British home market It is obvious that Tariff Reform, by raising British wages, will greatly increase the purchasing power of the British population, and with it the demand for cotton goods The enormous and scarcely suspected possibilities of the British home market as a consumer of cotton goods can most clearly be expressed in two lines as follows:

	£
Home trade in cottons in United States in 1909 ..	120,000,000
Home trade in cottons in United Kingdom in 1909 ..	20,000,000

The United States, with a population exactly twice as large as that of the United Kingdom, consumed in 1909 exactly six times as large a quantity of cotton goods as the United Kingdom. In other words, the average American family bought in 1909 three times as many shirts, sheets, handkerchiefs, etc., as the average British family. The figures £20,000,000 for Great Britain and £120,000,000 for the United States are practically manufacturers' cost prices. As the charges and profits of the middleman are far larger in America than in Great Britain, it follows that the American public expends, not six times, but from eight to ten times as much money on cotton goods as does the British public. We may therefore safely say that the average American family buys every year three times as large a quantity of cotton goods, and spends every year from four to five times as much money on cotton goods of every kind, as the average family in Great Britain.

Our cotton industry suffers from the narrowness and insufficiency of the British home markets. It suffers from the poverty of our working population, which has to stint itself of cotton goods. What prevents the average British family spending as much on cotton sheets, shirts, etc., as is spent by the average American family? Chiefly the insufficiency of British wages, which all Tariff Reformers wish to raise, and which, no doubt, they will be able to raise considerably under Tariff Reform. Universal experience has shown that the introduction of a riff has that effect upon the wages of labour. If our ple were as prosperous as the American people, our cotton industry should theoretically be able to sell every year in the British home market from four to five times as large a quantity of cotton goods as it does at present. It should sell, in the United Kingdom alone, cotton goods to the value of from £80,000,000 to £100,000,000. It is, of course, doubtful whether our workers will become as prosperous as the American workers. Besides, if they should become as prosperous, they might not be as lavish in their expenditure on cotton goods They might prefer some more exhilarating form of spending their money. However, it seems perfectly fair to assume that under improved industrial conditions, which Tariff Reform and intensified production all round will no doubt bring about, every British family should spend half as much money as the average American family That is, surely, a conservative estimate. In that case we should have a sale of cotton goods in the home market of about £50,000,000 per year If British wages were better, the home market should easily be able to absorb an additional £30,000,000 worth of British cottons This, therefore, is another reason why Lancashire should support Tariff Reform.

Apart from this more remote benefit, Tariff Reform would bring an immediate benefit to the British cotton industry in the home market. Very few people are aware that Great Britain is an enormous importer of foreign cotton goods, which enter this country in constantly growing quantities, as the following figures show:

IMPORTS OF COTTON MANUFACTURES INTO GREAT BRITAIN.

	£		£
1895	4,303,840	1910	9,823,551
1900	5,194,351	1911	10,379,151
1905	8,108,474	1913	12,250,000

The cotton goods imported into Great Britain during 1911 were classified as follows:

	£
Piece goods, printed, dyed, or coloured	2,581,076
Others	187,100
Gloves	590,688
Hosiery	2,085,318
Lace	2,539,402
Ribbons and trimmings	1,176,577
Unenumerated	1,218,990
Total	10,379,151

It will be noticed that the cotton goods imported into Great Britain in 1911 were not coarse yarns and piece goods, but belonged almost exclusively to the highest class. They were goods which were made valuable owing to the large amount of labour contained in them It is probably an understatement to say that of the £10,379,151 of cotton goods imported into Great Britain in 1911, £7,000,000 represented wages of labour and profits of manufacturers and middlemen The bulk of these £7,000,000 could be secured to British manufacturers, middlemen and wage-earners by Tariff Reform Comparison will show how enormous is the amount of cotton goods imported into this country Cotton piece goods constitute 75 per cent of our cotton exports Of these we sent the following to those European countries enumerated in the monthly accounts of trade and navigation and the United States.

BRITISH EXPORTS OF COTTON PIECE GOODS IN 1911.

	£
To France	423,662
To Germany	2,094,425
To the Netherlands	988,514
To Belgium	769,900
To Switzerland	1,594,236
To Italy	341,100
To Portugal, Azores and Madeira	487,420
To Greece	376,926
To Roumania	608,262
To Denmark	403,334
To United States	1,858,716
Total	9,946,495

In 1911, therefore, the foreign cotton goods which we imported were of greater value than the piece goods which we exported to all the countries enumerated in the foregoing table.

To our cotton industry the Chinese market is second in importance only to the Indian market, which is by far our largest outlet. In 1911 we sent to China, inclusive of Hongkong, cotton goods of all kinds to the value of £10,018,219 The foregoing figures show that by a tariff we can secure to our cotton industry within our frontiers a market about as large as that afforded for cotton piece goods by all Europe and the United States combined, and considerably larger than the Chinese market. We can have it for the asking It can be secured by Lancashire by a stroke of the pen These figures show incidentally that we need not fear retaliation, because we can capture in the home market cotton trade of far greater value than that which we can possibly lose by retaliation. Besides, experience teaches us that a carefully drafted tariff, supported by a wise diplomacy, does not lead to retaliation or to a Customs war.

I think the Lancashire cotton industry has not understood its best interests in opposing Tariff Reform It has opposed it through lack of knowledge It has opposed it because it honestly believed that a tariff would have a fatal effect upon its productions, and especially upon its export trade It has opposed it because it has not sufficiently studied its great rival, the American cotton industry, and the effect which the high Protective tariff has had upon that industry That effect was described as follows by the United States Tariff Board in its Report:

> On account of the different mill methods in this country, the domestic labour cost of weaving on a large variety of plain fabrics of wide consumption is below the foreign

cost. Except in the case of a few special fabrics, and in the case of various manufactured articles, some of which are produced in this country to a very slight extent, *the American industry practically supplies the whole consumption.* The imports of yarn in 1910 were less than one-half of 1 per cent. of the home production in pounds. The imports of cotton cloth were less than 2 per cent. of the home production in value.

Mill prices are in many cases as low in this country as in the world's markets. Where higher, as in the case of the finer classes of products, they are rarely higher by anything like the whole amount of the duty. *The effect of the present tariff, then, in most cases is not so much to add the duty to the domestic manufacturer's price as to secure him the American market;* and, in the case of most articles of widest consumption, to prevent the competition of the foreign manufacturer, either in normal or abnormal times. On account of more costly methods of distribution in this country from producer to consumer, the latter pays a decidedly higher retail price than the European consumer, even in the case of fabrics on which the cost of production and the mill price are as low here as there.

How would the simultaneous introduction of Tariff Reform and of American manufacturing methods affect the cotton workers?

It may, of course, be argued that if we introduced American labour-saving machinery we should displace 150,000 cotton workers, and that, for that reason alone, we ought not to change our manufacturing methods. That argument seems to me illogical. Experience teaches us two lessons: Firstly, that the introduction of labour-saving machinery increases the demand for manufactured articles so greatly as not to reduce, but to increase the number of workers; secondly, that a deliberate retention of antiquated methods and labour-wasting machinery inevitably brings about the ruin of industries and of the workers engaged in them. Lastly, it is not my impression, that the American cotton workers work harder than the English. Their great output is solely due to better machinery and organisation. By clinging to its present methods and to Free Trade, Lancashire will not even succeed in maintaining its present position. It will, instead, hand over its trade in neutral markets partly to the more perfectly equipped cotton industries of the United States, and partly to the cheap labour industries of Japan and China, to the great harm of Lancashire and its workers.

It is frequently asserted that Tariff Reform would ruin our cotton industry. I think I have shown that Tariff Reform should greatly benefit it. It would raise wages substantially, increase our market for cotton goods at home, and preserve for us the markets of India and the Dominions and Colonies. It should rather lower than increase our cost of production, and therefore promote our cotton exports to foreign countries. Of the industries of this country the cotton trade should be one of the greatest beneficiaries.

CHAPTER IX

THE PROBLEM OF THE TARIFF—THE BRITISH AND THE AMERICAN MERCHANT MARINE*

Frequently when men, both in England and elsewhere, discuss the merits of Free Trade and Protection, one hears assertions such as "Free Trade has given England her supremacy on the sea," or "Protection has destroyed the American shipping trade." *Post hoc sed non propter hoc.* It is a mere coincidence that the British Merchant Marine did greatly increase and that the American Merchant Marine did rapidly decline about the time when England abandoned Protection for Free Trade.

Few people in Great Britain are aware how incredibly quickly American shipping has declined. Its downward course during the last sixty years will be seen at a glance from the following table:

Total Exports and Imports of the United States by Sea.
(From the Report of the Commissioner of Navigation.)

Year.	*In American Vessels*	*In Foreign Vessels.*	*Total.*	*Percentage carried in American Vessels.*
	Dols.	*Dols.*	*Dols*	*Per Cent.*
1850	239,272,084	90,764,954	330,037,038	75·2
1860	507,247,757	255,040,793	762,288,550	65·5
1870	352,969,401	638,927,488	991,896,889	35·6
1880	258,346,577	1,224,265,434	1,482,612,011	17·4
1890	202,451,086	1,371,116,744	1,573,567,830	12·9
1900	195,084,192	1,894,444,424	2,089,528,616	9·3
1910	260,837,147	2,721,962,475	2,982,799,622	8·7
1913	381,032,496	3,392,028,429	3,773,060,925	10·1

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* From *The Nineteenth Century and After*, October, 1912.

In 1850 more than seven-tenths of the American foreign trade was carried in American vessels. In 1913 only one-tenth of the American trade was carried in such vessels.

In the United States and elsewhere it is frequently asserted that the Civil War "destroyed" the American Merchant Marine. That assertion is not correct. The American shipping engaged in the foreign trade was diminished not only by the attacks of hostile cruisers, but still more by being transferred from the foreign to the coasting trade; for, in the absence of adequate railways, the coasting trade had received an enormous impetus through the war which made huge transports of food and war materials necessary. The rapidity with which the American ships were so transferred will be seen from the following figures.

TONNAGE OF AMERICAN VESSELS.

Year.	*In the Foreign Trade.*	*In the Coasting Trade.*
	Tons.	*Tons.*
1861	2,496,894	2,704,544
1862	2,173,537	2,616,716
1863	1,926,886	2,960,633
1864	1,486,749	3,245,265
1865	1,518,350	3,381,522
Difference	– 978,544	+ 676,978

In the course of the war the tonnage of American vessels engaged in the foreign trade diminished by almost 1,000,000 tons, while that engaged in the coasting trade increased by almost 700,000 tons. The actual war losses suffered by the American Merchant Marine through capture and through the placing of American shipping under foreign flags were not as great as is generally believed.

Since the time of the war the character of the American Merchant Marine has curiously changed. The shipping engaged in the foreign trade has slowly and almost continuously diminished, whilst that engaged in the coasting trade has almost continuously and very greatly increased, as follows:

TONNAGE OF AMERICAN VESSELS.

Year.	*In the Foreign Trade.*	*In the Coasting Trade.*
	Tons.	*Tons.*
1865	1,518,350	3,381,522
1870	1,448,846	2,638,247
1875	1,515.598	3,219,698
1880	1,314,402	2,637,686
1885	1,262.814	2,895,371
1890	928,062	3,409,435
1895	822,347	3,728,714
1900	816,795	4,286,516
1905	943,750	5,441,688
1910	782,517	6,668,966
1913	1,019,165	6,817,013
Difference	– 499,185	+ 3,436,491

During the decade 1900-1910 alone the American coastal shipping has increased by considerably more than 2,000,000 tons, a truly wonderful progress.

Many causes have contributed to the decline of the American Merchant Marine. Of these the Civil War is only one. Another cause lay in the evolution of the ship towards the middle of last century. During the sailing-ship era the United States had, as far as the shipping industries are concerned, an enormous natural advantage over the nations of Europe, and especially over thinly wooded Great Britain, through the abundance of timber and of the other important raw materials required in shipbuilding, which were plentiful and extremely cheap in America, and which were very scarce and very dear in Europe. That advantage was lost with the advent of the iron ship.

Many people in the United States and in Great Britain believe that the decline of the maritime industries of the United States has been caused by the policy of Protection. However, according to the best American authorities, the former prosperity of the United States shipping was due, not to Free Trade, but to rigorous Protection, and the decline of the United States shipping was due, not to Protection, but to the withdrawal of Protection—to Free Trade. On that point the very important Report of the American Merchant Marine Commission, which examined all the leading shipping people in the United States, contains the following weighty pronouncement:

> The American merchant fleet from 1800 to 1860 was the second in size and the most enterprising, efficient and profitable in existence. But throughout most of that time it was a protected industry—protected at first by discriminating duties and tonnage taxes, which were not completely removed against our most formidable rival until 1849; protected later by the California gold discovery and the Crimean War. When these factors lost their power, as they did in 1855-1856, there came the sharpest and most significant decline that American shipbuilding has ever suffered, in the half-decade from 1855 to 1860.

How powerful the American shipbuilding industry was even during the very period of 1855-1860, when, as we are authoritatively informed, it suffered "the sharpest and most significant decline that it has ever suffered," will be seen from the fact that the output of shipping of the United States was then equal to the tonnage built in Great Britain, while the tonnage which the United States built for foreign countries was far greater than the tonnage which Great Britain built for foreign countries. On this interesting and important point Mr. E. T. Chamberlain, the Commissioner of the Bureau of Navigation, furnished the following figures to the American Merchant Marine Commission:

TONNAGE BUILT DURING THE FOUR YEARS 1858-1861.

In the United States.	*In Great Britain.*
849,307 tons.	883,495 tons.

TONNAGE SOLD TO FOREIGN COUNTRIES DURING THE FOUR YEARS 1858-1861.

In the United States.	*In Great Britain.*
101,222 tons.	74,642 tons.

Shortly before the outbreak of the American Civil War, and during a period when the American shipbuilding industry suffered "the sharpest and most significant decline that it has ever suffered," that industry was certainly as powerful as that of Great Britain, although the latter had Free Trade.

In 1871 the United States began the policy of admitting free of duty materials for shipbuilding, and gradually extended that policy. The Dingley Tariff of 1897, for instance, stated:

> Section XII.—That all materials of foreign production which may be necessary for the construction of vessels built in the United States for foreign account and ownership, or for the purpose of being employed in the foreign trade, including the trades between the Atlantic and Pacific ports of the United States, and also the materials necessary for the building of their machinery, and all articles necessary for their outfit and equipment, may be imported in bond under such regulations as the Secretary of the Treasury may prescribe, and upon proof that such materials have been used for such purposes, no duty shall be paid thereon. But vessels receiving the benefit of this

> section shall not be allowed to engage in the coastwise trade of the United States more than two months in any one year, except upon the payment to the United States of the duties of which a rebate is herein allowed; provided that vessels built in the United States for foreign account and ownership shall not be allowed to engage in the coastwise trade of the United States.
>
> Section XIII.—That all articles of foreign production needed for the repair of American vessels engaged in foreign trade, including the trade between the Atlantic and Pacific ports of the United States, may be withdrawn from bonded warehouses free of duty under such regulations as the Secretary of the Treasury may prescribe.

Under this law, not only steel plates and shapes, but articles of equipment as elaborate and costly as ships' compasses, were imported free of duty for the use of vessels built in the United States for the foreign trade, and for the coastwise trade between the Atlantic and the Pacific. As freight is cheap, and as all nations habitually sell their wares cheaper in the foreign than in the home market, the United States could obtain their raw materials required for shipbuilding as cheaply as the shipbuilders of the United Kingdom. It is therefore clear that Protection has not caused the decline of the United States shipbuilding industry, which has continued since 1897 notwithstanding the abrogation of all duties on imported materials for shipbuilding. On this point Mr. E. T. Chamberlain wrote in his Official Report on Navigation of 1909. "Among the fanciful causes for the decline of the American Merchant Marine the high tariff is sometimes included. Senator Gallinger wrote in his Report "Development of the American Ocean Mail Service and American Commerce" (60th Congress, 1st Session, doc. 225):

> Any shipowner or builder who desires to send to Scotland for his steel plates and shapes and other materials,

not only for the construction, but for the equipment and repair of the vessel for the deep-sea trade or for the coastwise trade between our Atlantic and Pacific ports, could have brought in such materials by the shipload, and received a rebate of every penny of the duty. If our ocean fleet has not increased, it has not been for lack of free access to the free materials of the world; it has not been because of the "extortion" of any trust or the "barriers" of a protective tariff. The truth is that "free materials" alone, as has so often been demonstrated, are not a determining factor in the prosperity of any industry.

The American protective system reaches no farther than the land frontiers, for the sea is open to all. Free Trade prevails on the sea. The decline of the shipbuilding and shipping industries of the United States is due—and this fact is most important—neither to the Civil War nor to Protection, but to the absence of Protection for American shipping on the seas.

Protection has brought many of the manufacturing industries from Europe to the United States, and has made them exceedingly prosperous and powerful. Owing to the rapid and continuous expansion of the manufacturing industries, employment in America is excellent as a rule, and there is work for all who will work. Besides, the high import duties which were imposed for the purpose of protecting "the American standard of living" have maintained American wages at a level which is approximately twice as high as that of British wages. The cost of ships consists of two factors, the price of raw materials and the wages paid in shipbuilding. Now, although the American shipbuilders can buy their beams, plates, etc., as cheaply as the British shipbuilders, either in the United States or abroad—for they can import them free of duty—American ships cost before the War far more than British ships, because of the great difference between American and British wages. On this point

Mr. John M'Neil, late National President of the Brotherhood of Boilermakers and Shipbuilders of America, stated before the Committee on Merchant Marine and Fisheries of 1906:

> I have served my time in Scotland, and have worked at the business there considerably. . . In Scotland and England the present rate of wages is 6s a day That is the standard rate of wages You, gentlemen, know what that is It is $1.50. That is the price paid at the present time at the Portsmouth Navy Yard, England. To-day, in this country, our mechanics in the Navy Yard here average $3 20 per day, or more than 100 per cent more than is paid in that country The same conditions will govern in the private yards of private corporations All the shipbuilding done in the Old Country, and a lot of it done here, is done on piecework. That includes all shipbuilders, skilled mechanics, riveters, fitters, caulkers, boilermakers The large majority of the work is done on piecework In Scotland the highest rate of wages at the present time for piecework in driving rivets is 9s per hundred for three-quarter rivets, and 10s 6d. for larger rivets The price increases with the size of the rivets. In this country you are paying $3 50 per hundred, whereas they are paying $1.75. . .
>
> The rate of wages and conditions existing on the other side make it impossible for us people here to compete successfully with them in the market. The wages over there are low, exceedingly low; they are over 100 per cent. lower over there than here in a great many cases. . . . I hope not a gentlemen here would desire to see American labour put on the same level or in the same condition as in England. There is no accommodation for the working-man there. He is a working-man as long as he lives; but in this country it is different, and we want you, gentlemen, to keep it different, too. We do not want conditions like that to come into this country, and I hope no gentleman here will try to enact any legislation that will bring about conditions whereby we will be compelled to work for the same rate of wages or under the same conditions as they do in England.

In the words of the American Merchant Marine Commission: “The real dominant factor is not the price of materials, but the high wages of the skilled American workmen who fashion the plates and beams into the finished ship.”

As wages in the shipbuilding trade were on an average about twice as high in the United States as in Great Britain, American ships were far more expensive than British ships. Now, the first cost of a ship is a matter of the greatest importance to shipowners. One must reckon 5 per cent. on the first cost of the ship for interest, 5 per cent. for depreciation, and 6 per cent. for insurance, or in all a charge of 16 per cent. per year. If, owing to the great difference in wages, an American ship costs 50 per cent. more to build than a British ship of equal size—that is an average difference—the American shipowner who competes with British trade is handicapped at the outset with a crippling charge of 8 per cent. per annum owing to the greater first cost of his ships alone. But in running his ships in free competition with the nations of the world the American shipowner had to reckon not only with this handicap of 8 per cent. per year, for American seamen's wages also were in many cases twice as high as are British seamen's wages. The American Merchant Marine Commission gave, for instance, the following example.

Total Wages Paid per Annum.

American s.s. “Acapulco,” operating between San Francisco and Panama.	*British s.s. “Palena,” operating between San Francisco and Valparaiso.*
Gross tonnage, 2,572 tons.	Gross tonnage, 2,553 tons.
66 men.	86 men.
Wages, $36,720.00 per annum.	Wages, $18,430.32 per annum

The American ship *Acapulco* paid twice the wages paid by the British ship *Palena*, although the British ship carried twenty more men.

Before the War American ships had not only to pay far higher wages than British ships, but they had also to provide better food and accommodation. For instance, according to Par. 107 of the American Navigation Laws American seamen are entitled to no less than 1½ pounds of fresh meat per day when in port, and to 1½ pounds of salt meat, canned meat, and fish per day when not in port. Owing to the abundance of employment and the high rate of wages prevailing universally in America, cheap sailors were unobtainable in that country Hence, free competition between English and American ships was out of the question The inability of the United States to compete freely on the sea with Great Britain on neutral routes is most strikingly shown by the following figures:

TONNAGE OF SHIPPING PASSED THROUGH THE SUEZ CANAL DURING 1911.

	Vessels.	*Tons Net.*
United Kingdom	3,089	11,715,947
United States	2	1,690

In the trade through the Suez Canal English and American shipping stood in 1911 in the relation of 6,000 to 1 On the neutral sea routes American shipping disappeared. Had the United States not reserved the coasting trade to American shipping, and subsidised a few liners, there would have been no American Merchant Marine at all

The Americans are an intensely patriotic people, and they think it is a disgrace to their country that their Merchant Marine, which used to rival that of Great Britain, has been practically wiped out; that almost her entire foreign trade was before the War carried in foreign bottoms, that the freight charges made by foreign ships for American exports were as a rule higher than the freight charged by the same ships for European exports; that an American wishing to travel from New York to Rio Janeiro or Buenos Ayres in comfort had to cross the ocean twice, travelling via England; that in case of war their fleet was dependent for its coal on foreign colliers. They felt all this as a national humiliation. Hence the citizens, regardless of class and occupation, called passionately for the re-creation of the American Merchant Marine. Important organisations for the promotion of the American Merchant Marine sprang up throughout the United States. Countless meetings of merchants, manufacturers, bankers and other business men demanded its re-creation for purely patriotic reasons On January 26, 1910, the National Board of Trade resolved at its fortieth annual meeting at Washington:

> That in our judgment the commercial interests of the country require prompt legislation, such as will result in the re-establishment of the American Merchant Marine.
>
> That we ask of Congress not only the immediate establishment of American owned and managed mail and freight lines to our dependencies and the leading commercial countries of the world, but also a proper legislation which will enable our citizens to build, operate and maintain steamers and sailing-vessels on an equal footing with any other maritime Power.

I could quote hundreds of similar resolutions passed unanimously, not only by associations of business men, but by farmers' granges as well.

That the re-creation of the American Merchant Marine is not a sectional or party matter, but a national question, will be seen by the examination of the party platforms and the party literature of the two great American parties. I have before me the Republican and Democratic Campaign Books of 1908 and 1910. In the Republican Campaign Book the re-creation of the Merchant Marine is advocated on eleven closely printed pages. In the Democratic Campaign Book it is demanded on no less than thirty-one pages. The two great American parties are agreed as to the end, but they are not agreed as to the means. The Republican party has hitherto recommended subsidies sufficient to enable American shipowners to compete with other nations on the ocean. The Democratic party has proposed a discriminating tariff in favour of goods imported in American ships by means of rebates on the import duties charged on the goods so imported. Ship-Subsidy Bills of various kinds have come every year before the American Congress.

The Atlantic trade of the United States was before the War carried on chiefly by Great Britain and Germany, whilst the Pacific trade of the United States was largely in the hands of the Japanese. The American shipping trade had fallen into the hands of Great Britain, Germany and Japan because wages in these three countries were far lower than in the United States Now every good American is indignant that they should have lost their Merchant Marine through the free competition of "low-priced alien labour," and not unnaturally they wish to take from Great Britain and the other great maritime countries the trade which they have lost. How can this be done in view of the existing commercial treaties? The late Senator Elkins, in a speech delivered in the United States Senate on April 5, 1897, on discriminating duties, said:

> When the United States wish to restore shipping and become independent on sea as on land, a treaty with England, covered with the dust of nearly a century, is brought forth, and we are solemnly told its sacred provisions must not be violated, and we must remain bound hand and foot, powerless to help ourselves, though what is proposed is right and proper, and would benefit our

interests. No treaty should stand in the way of our having what belongs to us as a matter of right, and having our fair share of the carrying trade of the world. Of course, no treaty should be violated as long as it is in force, but this Bill expressly proposes in terms to abrogate all treaties in conflict with the provisions of the Bill.

If that policy, which is frequently advocated, should be adopted, the danger of retaliation would, of course, arise. How will that danger be met? In a Report of 1910 (61st Congress, 2nd Session, Report 502, Part 2) on the American Merchant Marine, we read:

> All the commercial nations of the world need what we have to sell They cannot afford to impose unnecessary burdens upon their own people in their efforts to punish us for the exercise of the very right which they claim for themselves In one respect at least we have the advantage of any other country We produce the cotton which keeps their factories running, gives employment to their labour and clothes their millions They cannot get it elsewhere, and there is no substitute It is inconceivable that England, or Germany, or any other country which manufactures cotton cloth would put a burden upon our raw material, without which their machinery would stop and their people would suffer

The United States very naturally desire to recover the shipping trade they have lost from those countries to which they have lost it. Owing to Great Britain's predominance on the seas, the American maritime policy is necessarily and inevitably anti-British, sympathy with Great Britain notwithstanding. Besides, the War has given to the United States both an extremely powerful shipbuilding industry and an enormous and rapidly growing Merchant Marine, which before long may, for all we know, exceed the British Merchant Marine in tonnage. It stands to reason that the Americans will strive to preserve the prosperity of these two great industries after the conclusion of Peace. Great Britain must therefore reckon with the fact that the United States will become an exceedingly powerful competitor on the sea; that England may lose her old paramountcy in shipbuilding and shipping.

America's future as a shipbuilding country is particularly promising, because the United States are likely to apply to shipbuilding the same methods of high specialisation and of intensive production which have proved so extraordinarily successful in all their manufacturing industries. America will build ships of a standardised pattern in large numbers with the help of the most powerful machinery, and she will be well assisted by her workers, whose exceedingly high individual output will counterbalance, or perhaps more than counterbalance, the effect of higher American wages. Besides, she has a very great advantage in the possession of the most powerful iron industry in the world, and of an abundance of cheap coal. Exactly as in the old sailing-ship era, the United States may have a considerable advantage over Great Britain in consequence of the possession of a superabundance of relatively cheap raw materials which are used in shipbuilding. Last, but not least, the difference between British and American wages which previously existed and which was very great, should after the War be much smaller than it has been in the past. Possibly British and American wages will in future be approximately equal. It follows that England can preserve a great shipbuilding industry only by Americanising her shipbuilding methods, by producing ships on the largest and most scientific scale, and by insisting that labour will cease obstructing progress and restricting output. Otherwise she will not be able to compete in shipbuilding with the United States.

The wages of British and of other non-American sailors also may, in the future, approximate the wages paid to sailors in the United States. It follows that Great Britain will have to look to her laurels not only as a shipbuilding country, but also as a shipping nation.

The War will undoubtedly cause the rise of a great shipbuilding and shipping industry in the United States. England must reckon with the fact that she is going to receive in the United States a great and possibly a redoubtable competitor on the sea. However, there is, of course, the possibility that America will establish her maritime greatness rather at the cost of Germany than at that of the United Kingdom and of the British Empire. After all, the greatness of a nation's shipbuilding industry and shipping trade should depend on the importance of its general industry and on the extent of its foreign trade. If production should continue increasing relatively slowly in Great Britain and the British Empire, and should continue rapidly expanding in the United States, it would be only natural that the United States would in course of time dominate the world, not only in general industrial production, but in shipbuilding and shipping as well. After all, inefficiency of production and supremacy in the shipping trade are not reconcilable.

The territory, the population and the natural resources of the British Empire are vastly greater than those of the United States. If the Imperial resources should be adequately exploited, the British people will become the foremost nation in the world in industry, wealth and power; and if it should temporarily lose its maritime supremacy to the United States owing to the War, it would ultimately regain it, because industrial supremacy and maritime supremacy are bound to go hand in hand.

CHAPTER X

THE ECONOMIC POSITION AND FUTURE OF FRANCE

It is of the greatest importance to the Allies that the Great War should lead to a complete and decisive victory, but it is equally important for them and for the world at large that at the end of the struggle a rejuvenated, a more powerful and a greater France should arise. I shall endeavour to show in the following pages, by means of the best and the most reliable information available, that the peace of the world and the future of human civilisation are bound up with, and are dependent upon, France's future greatness, and upon her increased power and prosperity.

The Germans have been a conquering nation, a nation of valiant and aggressive warriors, since the earliest ages, since the very beginning of their recorded history. German hordes, the Cimbri and Teutones, invaded the Roman Empire in the second century before Christ, in the time of Marius, and made Rome tremble. The Germans were defeated for a time, but later on, when Rome declined, they were bought off. At the end of the fourth century and the beginning of the fifth century after Christ the German Goths and Vandals ravaged the Eastern European provinces of the Roman Empire, plundering Athens, Corinth and many other towns. They overran Asia Minor, destroying Ephesus and other celebrated centres of civilisation. They swept westward

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* From the *Fortnightly Review*, February, 1918.

and conquered Gaul and Spain. They turned to the south, invaded Italy, and in 410, under Alarich, stormed and plundered Rome and destroyed the Western Roman Empire. Their successors subjected Italy, France, part of Spain and vast territories in the East peopled by Slavs and Magyars. Charlemagne, the King of the Franks, conquered and ruled the countries from the Ebro to the Oder and the Danube on the one hand, and from the English Channel and the Bay of Biscay to the centre of Italy on the other hand. He was the most powerful monarch of his time. He was solemnly crowned Roman Emperor by the Pope in Rome in the year 800. He received significantly the double crown, the crown *urbis et orbis.* He became the protector of the Christian faith, of the Pope, of the Church Universal. He was given symbolically the key of the Holy Sepulchre of Jerusalem. He created "The Roman Empire of German Nationality," and adopted the title *Carolus serenissimus Augustus, a Deo coronatus magnus et pacificus imperator Romanorum gubernans imperium.* Charles the Great and his successors claimed to be the lawful heirs and successors of Cæsar and Augustus (Kaiser means Cæsar), the lords of the world. Incidentally, it should be observed that by destroying the Roman Empire and uprooting Roman civilisation the Germans plunged the world into the night of barbarism and savagery and put back the clock of civilisation by at least a thousand years.

The Germans are a very numerous, a very prolific and a very warlike race. German rulers, German statesmen, German thinkers and German patriots have during more than a thousand years hoped and fought for the reconstitution of a German Empire dominating the world, similar to the realms of Charlemagne and of Otto the Great. The Habsburgs tried in vain to obtain the dominion of the world. Their failure in the time of

Charles V. was due to France's determined opposition, without which they would probably have succeeded. The old Habsburg motto, *Austriæ est imperare orbi universo,* which was first used by the Emperor Frederick III., may still be found on Habsburg palaces abbreviated to "A.E I O.U." The Prussian Hohenzollerns have made themselves German Emperors in the place of the Habsburgs. They consider themselves the heirs of the realms and of the world-embracing aims of Charles V., of Otto the Great, of Charlemagne, of Augustus and of Cæsar. They will certainly try to recreate the German universal monarchy of the past.

History teaches us that the character of nations is singularly stable and unchanging The German people, the English people and the French people have faithfully preserved the national traits described to us by Tacitus, Cæsar and other historians two thousand years ago. Even if the present War should end in Germany's complete defeat, in the disappearance of the Hohenzollern dynasty in the disintegration of the German Empire, and in the establishment of a German Republic or several German Republics, the German nation may never forget its ancient power, pre-eminence and glory, and its successful resistance against a world in arms. The people may again become united and renew the struggle for world supremacy. Under other leaders the Germans may try once more to establish their paramountcy throughout the world, and they may, in the struggle, destroy modern civilisation as completely as they destroyed the civilisation of antiquity in the time of the Goths and the Vandals, the Franks and the Lombards. Such an event may seem improbable, but is by no means impossible. No cultured Roman would have believed that the German barbarians would destroy the Roman Empire and its civilisation, Roman organisation and the Roman law, and that the Latin language would disappear. Therefore the interest, not only of democracy, which is merely a form of government and comparatively unimportant, but of human civilisation and of human liberty, which are all-important, requires the creation of conditions which will prevent another German attack upon the world. Such an attack can be prevented only if there is in Europe an efficient counterpoise to Germany.

The German race has been greatly favoured by Nature. It is numerically very strong, it is exceedingly prolific, it is very warlike, and it occupies a most excellent strategical position in the centre of the European Continent. Besides, the Germans can greatly add to their numbers by a successful policy of denationalisation and of Germanisation, especially among the racially related peoples around them. Lastly, the Germans control vast natural resources, especially coal and iron, which provide wealth and weapons for war. The Russian Empire, which was formerly considered to be the most powerful factor barring Germany's expansion and preventing her aggression, has broken down and has been dissolved into its component parts, into an anarchy, into a number of quarrelling fragments which may or may not become self-governing States. For all we know, Russia may never again be reunited. Germany, even if defeated, will certainly endeavour to strengthen her union with Austria-Hungary, and especially with the German parts of the Dual Monarchy which lie near her frontier. Besides, she will certainly endeavour to prevent a Russian reunion. She will play off one Russian State against the other, and will strive to convert large portions of Russia, and, if possible, all Russia, into a German colony or a German protectorate. We must therefore reckon with the possibility that after the War, apart from a Greater Germany which includes Austria, the only Great Powers which will be left on the Continent of Europe may be France and Italy. Will these two Powers be strong enough to hold Germany in check with the help of the Anglo-Saxon nations, or will France and Italy also fall under German domination ?

The strength of nations depends on the number of their inhabitants and on their intellectual, moral and material resources. The present struggle has shown the paramount importance of two factors in warfare—of man-power, which provides large armies, and of industrial strength, which furnishes the fighting millions with the weapons, munitions, transport and supplies they require. France has borne the brunt of the German attack. She is militarily stronger than Italy, and, as Russia has been eliminated as a military factor, it is of the greatest importance to the Allies and to the world that France should be able to hold Germany in check, should that country desire to embark upon another war; that France should be so strong as to deter Germany from renewing the struggle.

Military power is based upon man-power and upon industrial power. Let us consider each of these factors.

A comparison of man-power in the two countries shows that with regard to men France is vastly inferior to Germany. During the last hundred years, for which exact comparative statistics can be given, France's position with regard to Germany has grown more and more unfavourable, as may be seen from the following figures, which are based upon the French and German Censuses, and which have been extracted from the official statistical year books of the two countries:

Year.	*Germany within its Present Limits.*	*France (since 1871, without Alsace-Lorraine).*
1816	24,833,000	29,480,000
1830	29,520,000	32,370,000
1850	35,397,000	35,630,000
1870	40,818,000	38,440,000
1871	40,997,000	36,190,000
1881	45,421,000	37,590,000
1891	49,762,000	38,350,000
1901	56,874,000	38,980,000
1911	65,359,000	39,602,000

In 1816 France had about 4,500,000 more inhabitants than Germany. In 1911 Germany had nearly 26,000,000 more inhabitants than France. A line divides the table into two parts, one from 1816 to 1870 and one from 1871 to 1911. It will be noticed that the year 1870 is a very important date both for France and for Germany. Since that year the difference in the population of the two countries has suddenly and very greatly been accentuated. During the fifty-four years from 1816 to 1870 Germany's population increased by 16,000,000, but during the forty years from 1871 to 1911 it increased by 24,500,000, or at a greatly accelerated rate. During the fifty-four years from 1816 to 1870 France's population increased by 7,000,000, but during the forty years from 1871 to 1911 it increased by only 3,500,000, or at a very reduced rate. The Franco-German War of 1870-1871 was apparently eminently favourable to the increase of Germany's population and exceedingly unfavourable to that of the French population. The reason for this curious difference will be discussed later on.

Ever since 1816 the population of France has been increasing at a much slower rate than that of Germany

Examination of the yearly increment for all the years since the end of the Napoleonic War, which may be found in the *Annuaire Statisque de la France*, shows that the French population, which increased at a fairly rapid rate after the Peace of Paris, tends to increase more and more slowly as the years go by—that it is, in fact, approaching the point of stagnation and of decline. Up to 1867 yearly increases of from 100,000 to 200,000 were the rule. Of late such increases have become quite exceptional. Between 1878 and 1910 the surplus of births over deaths exceeded 100,000 only twice and very slightly. As a rule the excess of births over deaths per year was only about 60,000, whereas it was about 800,000 in Germany. In some years the French population did not increase at all, but actually declined, the number of deaths being greater than that of births. In 1890, for instance France's population declined by 39,000, in 1891 by 11,000, in 1892 by 20,000, in 1895 by 18,000, in 1900 by 26,000, and in 1907 by 19,000. Although France has practically no emigration, but receives every year large numbers of immigrants from other countries, the population of the country tends towards stagnation, if not towards actual decline. In view of the fact that Germany's population is rapidly increasing, the stagnation of the French population seems very alarming. If the population of the two countries should increase at the same rate at which it has increased between 1871 and 1911, Germany should in 1951 have about 105,000,000 inhabitants and France only 43,000,000 inhabitants. There would then be twenty-five Germans to every ten Frenchmen. Many Germans who have compared the increase of the population in Germany and in France have confidently predicted that in half a century France will be a second- or third-rate Power, another Belgium—that the present is France's last war.

Many scientists, politicians and publicists who have studied the remarkable stagnation of the French population and the alarming reduction in the French birth-rate have ascribed the increasing barrenness of France to the Code Civil which provides for the equal division of property among children at the father's death, to the frequency of divorces, to the prevalence of alcoholism, and especially to the drinking of absinthe, to irreligiousness—in the deeply religious Finisterre the population increases comparatively rapidly—to the national egotism, to the Napoleonic Wars, to the general prosperity of the French, or to the decadence of the race. Racial decadence is most frequently given as the cause by France's enemies, especially by the Germans. The French race has certainly not grown sterile That may be seen by the example of the French Canadians. In 1763, when Canada fell to England, 65,000 French people lived in the country. At the Census of 1910, 385,083 born French Canadians lived in the United States alone. If we add to these the French Canadians living in Canada and the French Canadians born from French-Canadian parents living in the United States, it appears that the 65,000 French of 1763 have increased so much that they number now between 2,000,000 and 3,000,000. The latter figure is that which was given to me in Canada. If, however, we estimate that there are only 2,500,000 French Canadians, it would appear that since 1763 the French in Canada have increased fortyfold. In 1763 there dwelt in France 21,769,163 French people. If their number had increased at a similar ratio there would now be in the world 800,000,000 Frenchmen. France would dominate the world. The Napoleonic Wars are scarcely responsible for France's low birth-rate, for Germany, Spain and other countries lost in them about as large a proportion of men as did France. Alcoholism, divorces, etc., prevail in other countries as well. Consequently they cannot be held responsible.

The stagnation of France's population is certainly not due to egoism, to general prosperity and love of ease and comfort among the French, as is widely believed. The wealth of France is usually greatly over-estimated. The French are reputed to be exceedingly wealthy because they are extremely thrifty, and because they have, as a rule, a great deal of ready cash which they are willing to lend to foreign nations. They possess so much ready cash and lend it abroad because the French industries are stagnant and require little additional capital. The yearly surplus of income over expenditure in France is, after all, not very large. It is much smaller than it is in Germany and in the United States. In Germany and in the United States the rapidly expanding industries absorb the huge yearly surplus of income over expenditure. Hence both these States habitually borrowed money abroad, partly from France. Their abounding prosperity causes money to be scarce and dear. The decline of the French birth-rate is due, not to the prosperity of the people, which is largely a fiction, but, incredible as it may seem, to their poverty. In 1906 the birth-rate among the three great classes of the French people was as follows, per hundred families:

Among employers	295
Among salary-earners	199
Among wage-earners	284

It will be noticed that the birth-rate is greatest among the families of employers. The wage-earners come next, and the salary-earners, miserably paid officials, clerks, etc., have by far the smallest number of children. According to the French statistics, sterile marriages in 1906 stood in the following proportion:

Among employers	101
Among salary-earners	194
Among wage-earners	134

It will be noticed that sterility in marriage is by far smallest among employers and by far greatest among salary-earners, who earn a workman's wage or less, but have to keep up appearances at considerable cost. It seems probable that the stagnation of the French population is due, not to the causes which are usually given, but to the difficulty of making a living in France. I shall show in the following pages that prosperity, far from leading to a reduction in the birth-rate, leads to its rapid increase.

Although much has been written on the problem of population, it appears that the laws which regulate the birth-rate are insufficiently understood by the scientists and publicists of the present Adam Smith wrote, with his usual shrewd common sense, in Book I., chapter viii., of *The Wealth of Nations:*

> The demand for those who live by wages necessarily increases with the increase of the revenue and stock of every country and cannot possibly increase without it. . . . The most decisive mark of the prosperity of any country is the increase of the number of its inhabitants. . . .
>
> The value of children is the greatest of all encouragements to marriage. We cannot, therefore, wonder that the people in North America should generally marry very young. Notwithstanding the great increase occasioned by such early marriages, there is a continual complaint of the scarcity of hands in North America. The demands for labourers, the funds destined for maintaining them, increase, it seems, still faster than they can find labourers to employ. . . .
>
> The demand for men, like that for any other commodity, necessarily regulates the production of men; quickens it when it goes on too slowly and stops it when it advances

too fast. . . . The liberal reward of labour, therefore, as it is the effect of increasing wealth, so it is the cause of increasing population.

Adam Smith's phrase, " The demand for men, like that for any other commodity, necessarily regulates the production of men; quickens it when it goes on too slowly, and stops it when it advances too fast," describes concisely and correctly the principal influence which determines the increase, stagnation or decline of population in States. As the number of animals depends mainly on the quantity of food available, and as they increase when food is abundant and diminish when it becomes scarce, even so the number of men depends on the quantity of work available, for earnings can be converted into food and shelter. It follows that population increases everywhere *pari passu* with the increase in the opportunities of making a living. In other words, national fertility depends principally on a very commonplace factor, on the natural resources of countries and their exploitation by man. Rapidly increasing labour-employing industries require a correspondingly rapid increase of workers. The vast demand for workers in America has caused the French Canadians to increase fortyfold in a century and a half, and has caused the population of the United States to grow from 3,929,214 in 1790 to 91,972,266 in 1910.

On the boundless and very thinly inhabited virgin soil plains of America population can grow rapidly merely by the expansion of agriculture. That is proved by the example of Canada, the United States, Argentina, etc. In the densely populated countries of Europe, on the other hand, where there are no prairies which can be converted into ploughed fields, the number of men who live by agriculture cannot increase very considerably, even if agricultural production increases, for with the help of steam ploughs, drills, milking machinery, separators and other machines, an agricultural worker can now do as much work as was formerly done by several. How extraordinarily the development of the manufacturing industries may influence the increase of population may be seen from the following figures, which have been extracted from Porter's *Progress of the Nation* and the British and French Government Statistics:

Inhabitants of England and Wales.		*Inhabitants of France.*	
1600	4,811,718	1600	?
1700	6,045,008	1700	19,669,322*
1760	6,479,730	1762	21,769,163
1780	7,814,827	1784	24,800,000
1801	8,872,980	1801	27,500,000
1811	10,163,676	1811	29,350,000
1821	11,978,875	1821	30,450,000
1831	13,894,574	1831	32,570,000
1841	16,011,757	1841	34,230,000
1851	17,914,768	1851	35,800,000
1861	20,060,925	1861	37,390,000
1871	22,704,108	1871	36,190,000
1881	25,974,439	1881	37,590,000
1891	29,001,018	1891	38,350,000
1901	32,527,843	1901	38,980,000
1911	36,070,492	1911	39,602,000

Between 1700 and 1760, when England and Wales lived chiefly by a prosperous and rapidly expanding agriculture, the population of the country was practically stagnant. It increased by only 8 per cent. during the time. In the course of the next forty years, between 1760 and 1801, when the industrial revolution, the machine era, began, it grew by 37 per cent. Between 1600 and 1800 it increased by only about 80 per cent., or by 40 per cent. per century. On the other hand, since the beginning of the nineteenth century, since the time when Great Britain replaced hand labour by machine labour and became a manufacturing country, the population of

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Vauban's Estimate.

England and Wales has increased by more than 300 per cent. Since 1801 it has fully quadrupled, although during that period there was a very large emigration from England and Wales, and although British agriculture gave employment to greatly reduced numbers of workers, partly owing to the decline of agricultural production during the second half of the nineteenth century, partly owing to the introduction of labour-saving agricultural machinery. The rapid increase of the British population which previously had grown with extreme slowness, shows that the introduction of machinery increased not only the output of goods, but also that of men, in accordance with Adam Smith's dictum.

During the eighteenth century and the beginning of the nineteenth century, when both France and England were chiefly agricultural countries, the population of the two States progressed at almost the identical rate, as is shown by the figures given above. Nobody spoke then of the infertility of the decadence of the French race. Between 1700 and 1811 France had, as is shown by the reliable statistics given, about three times as many inhabitants as had England and Wales. Since 1811 a tremendous change has occurred. In 1911 the population of France was only 10 per cent. larger than that of England and Wales, and by 1921 England and Wales may have drawn level with France in respect of population. The economic factor has vastly accelerated the increase of population in the one country and has retarded that of the other country.

If we study analytically the British Census Returns for a long number of years, it appears that the colossal increase in the British population has taken place almost entirely in the towns; that the country population, exclusive of retired townsmen, suburban dwellers, etc., has remained stagnant; that but for the introduction of the manufacturing industries France would still contain three times as many people as England and Wales. In 1801 Manchester and Salford, which now have more than 1,000,000 inhabitants, had only 94,876 people; Liverpool, with about 800.000 inhabitants had 82.295 people; Leeds, with 500.000 inhabitants, had 53.162 people; Sheffield, with 500,000 inhabitants, had 45,755 people, etc.

The slow increase of the French population and the rapid increase of the English and German population is due to the fact that France, though possessing a very flourishing agriculture, has comparatively unimportant and somewhat stationary industries, while England and Germany possess manufacturing industries which have enormously and very rapidly expanded. The gigantic growth of their manufacturing industries has enabled England and Germany to nourish vastly increased numbers, and has brought about the remarkable increase in population.

Let us now inquire why Germany's population has grown so vastly within recent times.

During the last few decades Germany's agricultural production has more than doubled, as the following figures show:

PRODUCTION OF—

Year.	*Rye.*	*Wheat.*	*Oats.*	*Potatoes.*	*Sugar.*
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
1880 ..	4,952,525	2.345,278	4,228,128	19,466,242	415,000
1913 ..	12,222,394	4,655.956	9,713,965	54,121,146	2,632,282

Between 1880 and 1913—the latter was a particularly prolific year—not only the production of the great staple crops enumerated above, but that of meat also, has fully doubled, owing to the application of science to industry. No similar progress has taken place in any other European country. It might therefore be expected that Germany's agricultural workers, and her rural population as well, should have greatly increased in numbers. As a matter of fact, both Germany's rural population and her rural workers have numerically declined, the vast increase of output notwithstanding. The colossal increase of the population which has taken place in Germany has been confined exclusively to the towns, and it has been particularly great in the large towns, in the important manufacturing centres. An analysis of the German Censuses yields the following illuminating and surprising picture:

Year.	*In Towns of 100,000 and More.*	*In Towns of 20,000 to 100,000.*	*In Towns from 5,000 to 20,000*
1871	1,968,537	3,147,272	4,588,364
1880	3,273,144	4,027,085	5,671,325
1890	6,314,268	4,674,786	6,321,752
1900	9,120,280	7,111,447	7,585,495
1910	13,823,348	8,677,955	9,172,333

Year.	*In Towns from 2,000 to 5,000.*	*In All Towns.*	*In Localities of Less than 2,000.*
1871	5,190,801	14,894,974	26,163,818
1880	5,784,976	18,720,530	26,513,531
1890	5,931,186	23,241,992	26,186,478
1900	6,815,853	30,633,075	25,734,103
1910	7,297,770	38,971,406	25,954,587

The rural population of Germany, the people who live in townlets and villages of 2,000 inhabitants and less, were in 1910 actually less numerous than they were in 1871! During the same time the population of all towns of more than 2,000 inhabitants has grown from 14,894,974 to 38,971,406, or by 163 per cent. In the towns of from 2,000 to 5,000 people the population has increased by only 40 per cent., in the towns of from 5,000 to 20,000 inhabitants it has grown by 100 per cent., in the towns of from 20,000 to 100,000 it has increased by 175 per cent., and in the towns of 100,000 inhabitants and more it has grown by no less than 610 per cent.

As general statements are not as illuminating as are concrete detailed examples, I would further illustrate the cause of the rapid growth of Germany's population. I would now give the record of the principal German towns, which will best enable us to visualise and to understand the causes of the marvellous increase of Germany's population and national wealth. The figures given are taken from the German Censuses:

Year.	*Berlin.*	*Hamburg.*	*Munich.*	*Leipzig.*	*Dresden.*
1875 ..	966,858	264,671	193,024	127,387	197,295
1880 ..	1,122,330	289,859	230,023	149,081	220,818
1890 ..	1,578,794	569,260	350,594	357,122	276,522
1900 ..	1,888,848	705,738	499,932	456,124	396,146
1910 ..	2,071,257	931,035	596,467	589,850	548,308

Year.	*Cologne.*	*Breslau.*	*Frankfurt.*	*Düsseldorf.*	*Nuremberg.*
1875 ..	135,371	239,050	103,136	80,695	91,018
1880 ..	144,772	272,912	136,819	95,458	99,519
1890 ..	281,681	335,186	179,985	144,642	142,590
1900 ..	372,529	422,709	288,989	213,711	261,081
1910 ..	516,527	512,105	414,576	358,728	333,142

Year.	*Charlottenburg.*	*Hanover.*	*Essen.*	*Chemnitz.*	*Stuttgart.*
1875	25,847	106,677	54,790	78,209	107,273
1880	30,483	122,843	56,944	95,123	117,303
1890	76,859	174,455	78,706	138,954	139,817
1900	189,305	235,649	118,862	206,913	176,699
1910	305,978	302,375	294,653	287,807	286,218

Year.	*Magdeburg.*	*Bremen.*	*Konigsberg.*	*Stettin.*	*Duisburg.*
1875	87,925	102,532	122,636	80,972	37,380
1880	97,539	112,453	140,909	91,756	41,242
1890	202,235	130,875	161,666	116,228	59,258
1900	229,667	163,297	189,483	210,702	92,730
1910	279,629	247,437	245,994	236,113	229,483

Year.	*Dortmund*	*Kiel.*	*Mannheim.*	*Altona.*	*Elberfeld.*
1875	57,742	37,246	46,453	84,097	80,589
1880	66,554	43,594	53,465	91,047	93,538
1890	89,663	69,172	79,058	143,241	125,899
1900	142,733	121,824	141,131	161,501	156,966
1910	214,226	211,627	193,902	172,628	170,195

Year.	*Gelsenkirchen.*	*Barmen.*	*Cassel.*	*Bochum.*	*Mülheim a.d. Ruhr.*
1875	11,295	86,504	53,043	28,368	15,277
1800	14,615	95,941	58,290	33,440	22,146
1890	28,057	116,144	72,477	47,601	27,903
1900	36,935	141,944	106,034	65,551	38,280
1910	169,513	169,214	153,196	136,931	112,580

Beyond the thirty towns for which statistics are given, Germany has seventeen other towns of more than 100,000 inhabitants—viz., Aix-la-Chapelle, Augsburg, Schöneberg-

Berlin, Wilmersdorf-Berlin, Neukölln-Berlin, Brunswick, Crefeld, Dantzig, Erfurt, Halle, Hamborn, Mayence, Plauen, Posen, Saarbrücken, Strassburg, Wiesbaden. Altogether Germany possesses forty-seven towns of more than 100,000 inhabitants, or almost as many as the United Kingdom, while France has only fifteen.

A glance at the statistical table shows that all the German towns have grown with extraordinary rapidity; that the increase of population has been least great in the political centres and the residential and commercial towns, Berlin suburbs such as Charlottenburg excepted; and that it has been fastest in the manufacturing towns, and particularly in those which live by the exploitation of coal and iron. Since 1875 the population of Dortmund has grown fourfold, that of Düsseldorf four and a half-fold, that of Bochum fivefold, that of Essen five and a half-fold, that of Duisburg and of Kiel (shipbuilding) sixfold, that of Mülheim a.d. Ruhr sevenfold, that of Gelsenkirchen fifteenfold. Hamborn, between Duisburg and Essen, which was a village a few decades ago, had 32,597 inhabitants in 1900, 73,454 inhabitants in 1905, and 101,703 inhabitants in 1910. All the towns named are coal and iron centres, and all but Kiel lie close together in the Ruhr district.

The extraordinary effect of coal and iron, and especially of coal, upon population may be seen by the example of the Ruhr coal district. On and around that district, on territory which measures about forty miles by twenty, an area which is about as large as a small English county such as Nottinghamshire or Oxfordshire or Surrey, may be found eleven out of those forty-seven German towns of more than 100,000 inhabitants. These are Düsseldorf, Essen, Duisburg, Dortmund, Elberfeld, Gelsenkirchen, Barmen, Bochum, Mülheim a.d. Ruhr, Crefeld, Hamborn. In addition there are situated in the district named fifty-five towns which have from 10,000 to 100,000 inhabitants, and a number of these are rapidly approaching the 100,000 limit. This narrow district, which resembles a gigantic town, is the greatest centre of population in Germany. It was inhabited in 1905 by 4,840,143 people and in 1910 by 5.818.237 people. Its population increased, therefore, by practically 1,000,000 within five years. The growth of the German towns is without a parallel in the world, except in the Western States of North America Her coal and iron centres are Germany's colonies. Whereas in each of the years between 1905 and 1910 about 200,000 Englishmen left their homes and settled abroad, about as many Germans left their homes and settled in the celebrated Rhenish-Westphalian coal and iron district.

It appears that in the densely populated countries of Europe the increase of population is caused chiefly by the expansion of the manufacturing industries, that the population has grown rapidly in England and Germany owing to the mighty development of their manufactures, and that the French population has increased slowly, and tends now towards stagnation and decline, owing to the insufficient development of France's industrial power. Some believe that France's backwardness in manufacturing is due to the character of the French, to their lack of enterprise, lack of energy, inborn conservativeness, and to their protective tariff. As the German and American industries have grown mightily under rigid Protection, France's fiscal policy can obviously not be held responsible for her industrial backwardness. Nor can the character of the French be blamed. The French business men are hard-working, ambitious and enterprising, and they possess much originality and great inventive power. They have led the world in many branches of manufacturing, and particularly in those which require the highest artistic, scientific and technical skill. In scientific agriculture, in the metallurgical industries, in the making of machinery of every kind, in engineering, in the electrical and chemical industries, in the making of the highest-class textiles, glass, porcelain, optical and surgical instruments, etc., the French have led the world. They certainly possess the energy, inventiveness, skill and ambition which are required for industrial success.

The economic progress of nations is caused partly by the qualities of their inhabitants, partly by geographical and geological factors. Germany's wonderful advance in agriculture and industry is chiefly due to Nature's bounty. Agriculture is carried on most successfully on level ground. North Germany is a gigantic plain. One can travel by rail from the Rhine to Berlin and thence to Hamburg or to Königsberg without passing through a single tunnel. Agricultural and industrial progress depends very largely on cheap transport. The North German plain is opened up by a wonderful system of vast but gentle rivers, which have a parallel course and which are easily navigable for hundreds of miles. Moreover, Germany's agriculture has benefited greatly by the fact that the country possesses a world monopoly in her gigantic deposits of soluble potash, which are invaluable for intensive agriculture. We can therefore not wonder that Germany's agricultural production has doubled since 1880, as has previously been shown. While Germany consists chiefly of a vast plain, and while she possesses conditions which are eminently favourable for agricultural production and for developing a system of cheap transport by rail and water, the advantage of which need scarcely be pointed out, France is chiefly mountainous, and her turbulent rivers, such as the mighty Rhone, make inland navigation extremely difficult and costly.

The increase of national population depends chiefly on the progress of the manufacturing industries, and the progress of these depends chiefly on the production of two commodities, of coal and of iron. Cheap iron is indispensable for producing cheaply all goods made of iron, and as long as coal continues to be the foundation of all manufacturing, no nation can hope to develop powerful iron industries and other industries unless it possesses an abundance of cheap coal. Contrary to general belief, coal is used chiefly, not for domestic, but for industrial purposes. This may be seen from the estimate of British coal consumption in 1903 made by the Royal Commission on Coal Supplies:

COAL CONSUMPTION IN THE UNITED KINGDOM.

	Tons.
Railways (all purposes)	13,000,000
Coasting steamers (bunkers)	2,000,000
Factories	53,000,000
Mines	18,000,000
Iron and steel industries	28,000,000
Other Metals and Minerals	1,000,000
Brickworks, potteries, glass works, chemical works	5,000,000
Gasworks	15,000,000
Domestic	32,000,000
Coal consumed in 1903—Grand Total ..	167,000,000

It will be noticed that only a very small portion of the coal used is employed for domestic purposes; that coal is used chiefly in factories, iron and steel works, chemical works, transport, etc.

The fact that the industrial progress of the great manufacturing nations is chiefly due to their wealth in coal may be seen at a glance from the following figures, which are taken from the Report on the Coal Resources of the World of 1913:

PRODUCTION OF COAL

Year	*United States.*	*Germany*	*United Kingdom*	*France.*
	Tons.	*Tons.*	*Tons.*	*Tons.*
1865 ..	24,790,000	28,330,000	99.760,000	11,840,000
1870 .	29,950,000	34,880,000	112,240,000	13,330,000
1875 .	48,200,000	48,530,000	135.490,000	16,950,000
1880 ..	66,830,000	59,120,000	149.380,000	19.360,000
1885 ..	112.180,000	73,670,000	161,960,000	19.510,000
1890	141,620,000	89,290,000	184.590,000	26,080,000
1895 .	177,590,000	103.960,000	193.350,000	28,240,000
1900 ..	243.410,000	149,790,000	228,770,000	33,400,000
1905 .	351,120,000	173,660,000	239.890,000	36,050,000
1910 .	445,810,000	221,980,000	264.500,000	38,570,000
1913 ..	504,520,000	273,650,000	287,410,000	40,190,000

Industrial progress determines population, and coal determines industrial progress. Coal is the mother of industry and of population. If England should be suddenly deprived of her coal, the population would starve and would rapidly dwindle. A glance at the figures given shows that the population and industrial strength of the four countries named have increased *pari passu* with their coal output. Where coal production has increased most rapidly, wealth and population have grown fastest. In 1865, when England produced far more coal than the United States, Germany and France combined, England's industrial supremacy seemed unchallengeable. Since then coal production in the United States and in Germany has advanced far more rapidly than in England, and with the slackening in the output of coal England's output of manhood has slackened as well Coal is the mother of industry and of population. Coal production and birth-rate go hand in hand.

Coal production determines general production, and especially iron production, for the iron industries require vast quantities of coal. In the principal industrial countries the output of iron has increased as follows :

Year.	*United States.*	*Germany.*	*United Kingdom.*	*France.*
	Tons.	*Tons.*	*Tons.*	*Tons.*
1865 ..	845,000	975,000	4,896,000	1,290,000
1870 ..	1,691,000	1,391,000	6,060,000	1,173,000
1875 .	2,056,000	2,029,000	6,432,000	1,416,000
1880	3,896,000	2,729,000	7,802,000	1,733,000
1885 ..	4,111,000	3,687,000	7,369,000	1,630,000
1890 ..	9,353,000	4,658,000	8,033,000	1,962,000
1895 ..	9,597,000	5,465,000	7,827,000	2,005,000
1900 ..	14,101,000	8,521,000	9,052,000	2,699,000
1905 ..	23,360,000	10,988,000	9,746,000	3,077,000
1910 ..	27,740,000	14,793,000	10,380,000	4,001,000
1913 ..	30,966,000	19,292,000	10,260,000	5,311,000

During the period under consideration Germany and the United States, which in 1865 were quite unimportant as iron producers, have rapidly overtaken the United Kingdom in iron production; and France, which produced in 1865 more iron than the United States and Germany, produced before the War only one-fourth as much as Germany and one-sixth as much as the United States. The reason for the rapid progress in Germany and for the slow advance in France is obvious. While Germany is exceedingly rich in the most valuable minerals, particularly in coal, iron and potash, France is very poor in minerals, especially in coal. The most reliable coal statistics available are those which were put before the International Geological Congress of 1913. According to the Report on the Coal Resources of the World then published, the coal existing in Europe was estimated as follows:

	Tons.
In Germany	423,356,000,000
In United Kingdom	189,535,000,000
In Russia	60,106,000,000
In Austria-Hungary	59,269,000,000
In France	17,583,000,000
In Belgium	11,000,000,000
In Spain	8,768,000,000
In Spitzbergen	8,750,000,000
In Holland	4,402,000,000
In Balkan States	996,000,000
In Italy	243,000,000
In Sweden, Denmark, Portugal	184,000,000
Total	784,192,000,000

It will be noticed that Germany possesses about 55 per cent. of Europe's coal, that she has more than twice as much coal as all the other Continental States combined, that she has more than twice as much coal as the United Kingdom, and twenty-five times as much coal as France. We can therefore not wonder at France's industrial inferiority. Little Belgium alone is almost as rich in coal as is France. France suffers not only from a shortage of coal: the little coal she has can be worked only with difficulty. Unfortunately, she has a large number of small, and therefore uneconomic, coalfields, and the French coal strata are very thin, very irregular, and full of faults owing to disturbance of the ground There are no less than fifty coal districts and twenty lignite districts in the country. Coal is worked in twenty-nine departments, but the bulk of the French coal, nearly three-fourths of her output, comes from her north-eastern territory, which is at present in German hands. Before the War French coal production was habitually greatly below France's needs. Owing to the shortage of coal and the difficulty of working the existing mines, coal was always scarce and dear in France. Industrial prosperity cannot be based upon insufficient and very expensive coal. France's shortage of coal alone explains her industrial backwardness.

In iron ore also Germany occupies a very favoured position. The following table is drawn from the work, *Iron Ore Resources of the World,* which was placed before the International Geological Congress of 1910 ·

ASCERTAINED RESERVES OF METALLIC IRON.

	Tons.
In Germany and Luxemburg ..	1,360,000,000
In France	1,140,000,000
In Sweden	740,000,000
In United Kingdom ..	455,000,000
In Russia	387,200,000
In Spain	349,000,000
In Norway	124,000,000
In Austria-Hungary	103,500,000
In Greece	45,000,000
In Belgium	25,000,000
In Italy	3,300,000
Total	4,732,000,000

Germany has by far the largest iron deposits in Europe. France comes second. Her principal ironfield, that of Briey, the importance of which has only recently been discovered, lies close to the German frontier and has been seized by Germany. The important iron and coal mines of Belgium, of Poland, and of Western Russia also, are in Germany's hands. Germany intends to retain the coal and iron bearing frontier lands upon which she has seized. That has been announced by her statesmen, her Generals, and her business men. As Sweden has apparently fallen under Germany's control with regard to the supply of iron ore, it appears that Germany would absolutely dominate Europe in coal and iron should she be able to retain the frontier districts which she has overrun. By retaining the district of Briey and the north-eastern departments of France, Germany could starve that country of coal. Being deprived of the necessary fuel, France's industries would languish and decline, and so would her population, for industry and population go hand in hand, and no industrial nation can continue to exist if suddenly deprived of its coal.

If we look at maps on which the coalfields are indicated we find invariably that the greatest centres of population occur on and around the great coalfields. Population is densest in the United Kingdom, in Belgium, in Germany, in France, in Russia, in Poland, in the United States, etc., on, and close to, the great coalfields. This is only natural. Industries require vast quantities of coal. For instance, three tons of coal are required to smelt a ton of iron. It is therefore cheaper to bring the industries to the coal than the coal to the industries. It is cheaper to carry iron ore, wool, cotton and other raw materials to the coalfields and to manufacture near the pit's mouth than to carry coal to the iron-mines for manufacturing iron, or to the harbour towns for making woollens, cotton goods, etc. Sheffield, Manchester, Glasgow, Pittsburg, Essen, etc., owe their rise to the vicinity of the coalfields. If Germany should be allowed to retain her conquests she would not only subject to herself millions of non-Germans, but she would absolutely dominate Europe with the coal and iron monopoly which the War would have given her, and she would thus be able to embark upon the final conquest of the world. Moreover, her vast mineral resources would allow her to double and treble her population, while France, deprived of the bulk of her mineral resources, would decline in wealth, power and population. She would cease to count as an industrial country, while Germany would become far more densely peopled than the United Kingdom and Belgium.

The progress of population depends on the progress of the labour-employing industries, and the progress of these depends chiefly on the possession of the indispensable raw materials. However, there is another important factor which influences the birth-rate. A victorious war is apt to promote industrial development and to increase population, while a disastrous war is apt to influence both industry and population most unfavourably. After 1871 population in Germany increased far more quickly than it had done previously, but France's population increased far more slowly Obviously the war stimulated the increase in population of one country and restricted it in the other Germany's industries expanded rapidly owing to the confidence which the victory had inspired, owing to the acquisition of Alsace-Lorraine, and owing to the receipt of the French war indemnity of £200,000,000. The war had cost Germany only £50,000,000 She had realised a vast territorial and financial profit and had invested it in the business. France, on the other hand, had been greatly impoverished by the war. Her losses may be estimated at at least £1,000,000,000, a colossal sum at the time. Moreover, France's taxation was enormously increased by the war, which had scarcely affected taxation in Germany. Germany deprived France in 1871 not merely of two provinces with 1,500,000 people and vast mineral resources, but of millions of prospective citizens who would have been born of French parents had not the hard times following the war compelled them to restrict the birth-rate. The limitation of families became so serious in France after 1871 owing to her defeat as well as owing to the insufficiency of her coal.

The future of France evidently depends on the result of the War. If Germany should be able to retain the vast coal and iron resources of North-Eastern France, Belgium, Luxemburg and Alsace-Lorraine, her population would grow at an unprecedented rate, while that of France would not merely remain stationary, but would rapidly decline. Lack of natural resources is bound to tell. In a few decades France would, indeed, cease to be a Great Power, she would become a minor State at the mercy of Germany, a German dependency.

It is in the interests of Europe and of the world that France should remain great, strong and prosperous; that her population should again increase so as to enable her to hold her own against Germany. France can be aggrandised only if her territories are increased, and if she possesses or controls those resources by the exploitation of which men live, thrive and multiply. The Allies have announced that, in re-drawing the map of Europe, they will be guided by the principle of nationalities, by the right of the people to govern themselves. The facts given in these pages show that, although the racial factor is very important, the economic factor is no less weighty. Policy, though striving after the ideal, should not overlook and neglect the practical, the necessary and the obvious. It is clear that nations cannot hope to survive if their opponents possess vastly superior natural resources which secure to them an overwhelming and a constantly growing preponderance in man-power and in industrial power, in soldiers and in arms, in power and in wealth Not only the political frontiers of the world, but the economic frontiers too, may have to be rectified if the future peace is to be a lasting one. The peace of the world and the future of human civilisation are dependent on France's future greatness and upon her increased power and prosperity. The population of France can be increased only if the country acquires, in consequence of the War, adequate natural resources, the exploitation of which allows men to thrive and to multiply. A France with a stationary or a retrogressive population is bound to become Germany's vassal within a few decades. Germany might more easily defeat France in peace than in war. France can remain great and strong only if she obtains those material securities which she urgently requires

CHAPTER XI

THE PROBLEM OF ALSACE-LORRAINE *

At present Germany absolutely dominates the Continent of Europe owing to her vast preponderance in population, in natural resources of every kind, especially minerals, and in the manufacturing industries, and therefore in soldiers, arms, munitions of war and wealth. France is the second strongest Power on the Continent, but she is greatly inferior to Germany in population, minerals and the manufacturing industries, and therefore in armed strength and wealth as well. It is obviously in the interest of Europe and of the world that France should be so strong as to be able to act as an efficient counterpoise to Germany; that she should be so strong as to be able to prevent that country embarking once more upon a great war of conquest. It follows that at the Peace an attempt should be made to redress the balance, to strengthen France to such an extent that she will be able to resist a German attack with hope of success.

France is at present too weak in men, material, resources and wealth, if compared with Germany. She requires strengthening, and she can be strengthened most easily either by joining to her in some form or other populous territories near her frontier or by placing at her disposal an adequacy of those natural resources, especially coal, which she lacks, and by the exploitation of which men multiply and nations acquire increased power, or by

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* From the *Fortnightly Review*, March, 1918.

carrying out both these measures at the same time. The defensive strength of France could obviously most easily be increased by the return of Alsace-Lorraine, which was torn from her side in 1871. In addition, France and Belgium might conclude a strict alliance for mutual defence.

Before the War Germany had 67,000,000 inhabitants, France, had 40,000,000 inhabitants, Belgium had a population of 8,000,000, and Alsace-Lorraine a population of 2,000,000. If Germany should lose only Alsace-Lorraine to France, her population would be reduced from 67,000,000 to 65,000,000, and that of France would be increased from 40,000,000 to 42,000,000, while France and Belgium combined would have a population of 50,000,000. Germany would still continue to be vastly superior to France in men, and particularly in mineral and industrial resources. The abundance of Germany's natural wealth, and especially her vast riches in coal, would enable the German population to increase at a very rapid rate, while the lack of natural resources, particularly of coal, would cause France's population to remain stationary. Before long Germany's preponderance over France in man-power, industrial power, wealth and armed strength would be absolutely overwhelming. It follows that the retrocession of Alsace-Lorraine and a Franco-Belgian alliance would not suffice to re-establish the balance between France and Germany At best it would prove a very ineffective half-measure.

The Allied statesmen have formally and solemnly recognised France's title to Alsace-Lorraine. On the other hand, the Germans and their friends have informed us that Alsace-Lorraine was originally part of Germany; that it was unjustly torn from Germany in the time of Louis XIV.; that the vast majority of the inhabitants of the country are Germans by race and by language;

that they are happy and prosperous; that they have no wish to become once more subjects of France: that a *plébiscite* would establish the fact that they desire to remain Germans. Let us consider the arguments in favour of Germany retaining Alsace-Lorraine by means of the official German statistics, to which not even the most patriotic German can take exception. The figures used in this article have been taken from the *Statistisches Jahrbuch für Elsass-Lothringen*. The issue of 1913 has been used, and the pages have been indicated in every case so as to facilitate reference and control of the statements made.

Alsace-Lorraine was not " torn from Germany in the time of Louis XIV.," as is frequently stated, but was willingly ceded by Germany to France in 1648 at the Peace of Westphalia, which ended the Thirty Years' War. The fact that Germany attached little value to the possession of Alsace-Lorraine at the time, and that that country was ceded willingly, if not gladly, may be seen from the sixth edition of Meyer's *Konversations Lexikon*, the leading German encyclopædia. We read under the heading " Elsass-Lothringen " in vol. v., p. 733:

> How little the Imperial House of Habsburg was willing to preserve the frontier-land for Germany was shown by the treaty of March 20th, 1617, by which it ceded to Spain its rights to Alsace. In the course of the Thirty Years' War (which began in 1618) Duke Bernhardt of Weimar tried to found a principality for himself in Alsace. However, he tried to do this with the help of French support and of French money. When he died, in 1639, Alsace fell into the hands of the French, and at the Peace of Westphalia of 1648 the Emperor ceded to France all his rights to Alsace. Thus France took the place of Spain. It is true the rights of the Imperial Estates were recognised in particular because the Emperor had waived his rights in his capacity as Overlord of the Empire, not on behalf of the Empire.

The stipulations whereby this transference of territory and of rights was made were vaguely worded for the purpose of sparing Germany's susceptibilities and of facilitating the conclusion of the peace. That is acknowledged by most impartial historians. Louis XIV. did not rob Germany of Alsace-Lorraine, but made use in his own time of the stipulations of the Treaty of Westphalia by abolishing the purely nominal independence which had been left to the Alsatian Statelets. The inhabitants of the two provinces were happy to become Frenchmen, and they became most loyal and devoted subjects of France, because that country pursued a wise policy of justice and of generous toleration towards them, which contrasts most favourably with the rule of petty persecution and oppression which Germany initiated in 1870. Ever since the people of Alsace-Lorraine have fought enthusiastically and determinedly for France. On the Arc de Triomphe in Paris, on which the names of those Generals were inscribed who distinguished themselves in fighting for revolutionary and Napoleonic France, the following twenty-eight names of Alsatian Generals are engraved.

Schérer (the Minister of War), Wehrlé, Beurmann, Wolf, Castex, Kellermann (who, at Valmy, defeated the Prussians, saved France, and became Duc de Valmy and Marshal of France), Strolz, Kléber (who succeeded Napoleon as Commander in Egypt), Schauenbourg, Becker, Stengel, Amey, Kellermann Fils, Lefebvre (Duc de Dantzig and Marshal of France), Hatry, Boyer, Dorsner, Schramm, Schneider, De Berckheim, Chouard, Schaal, Bourcier, Rapp (Napoleon's Aide-de-Camp), Walther, Schramm Fils, De Coehorn, Dahlmann.

In addition, thirty-four other Alsatian Generals served under Napoleon. In this War also numerous distinguished Alsatian officers have been fighting on the side of France, but scarcely any on that of Germany.

The present War is largely fought in defence of the principle of nationalities, in defence of the principle that nations are entitled to be free, that they have the right to dispose of themselves and to govern themselves. Therefore, we need not attach over-great importance to the learned arguments advanced by professors of history, who dispute the provisions of the Treaty of Westphalia, or to the learned, but very contradictory, opinions of ethnologists, archæologists, philologists and anthropologists who establish racial and national claims by measuring skulls, dissecting language roots, etc. Men choose their allegiance, not for anthropological, philological, or historical reasons, but for more human and more commonplace motives. As a rule, they are willing to live under a Government which treats them justly and fairly, but they are unwilling to submit to harshness, exploitation and gross and palpable injustice. Men of the same race consider themselves to some extent, as brothers. Hence, governmental injustice becomes particularly irksome, exasperating and unbearable if it is exercised by men of a different race.

At first sight the contention that the inhabitants of Alsace-Lorraine are men of German race and that they are satisfied would seem to be perfectly correct. The Statistical Year-Book for Alsace-Lorraine provides us, on p. 22, with the following language statistics:

MOTHER-TONGUE OF INHABITANTS OF ALSACE-LORRAINE.

	In 1900.	*In* 1910.
Inhabitants of German language ..	1,492,323	1,634,260
,, ,, French language ..	199,433	204,262
,, ,, various languages ..	27,714	35,492
Total	1,719,470	1,874,014

In 1910, at the time of the Census, only 204,262 of the inhabitants of Alsace-Lorraine, or less than one-ninth, had the French mother-tongue, and only 99,612 people, or one-nineteenth of the inhabitants, spoke French and did not know German. The great majority of the Alsatians and Lorrainers are of German descent and language. That is shown not only by the statistics quoted, but by the general prevalence of German personal names as well. The list of Alsatian officers inscribed on the Arc de Triomphe, previously given, contains scarcely any except German names.

The satisfaction or dissatisfaction of conquered people can usually be measured with mathematical certainty by their movements. Satisfied annexed populations increase, but dissatisfied ones diminish through the decline of the birth-rate, and especially through emigration. Since its incorporation in Germany the population of Alsace-Lorraine has, according to the Alsatian Statistical Abstract, p. 1, changed as follows:

Year.		*Year.*	
1871	1,549,738	1895	1,640,986
1875	1,531,804	1900	1,719,470
1880	1,566,670	1905	1,814,564
1885	1,564,355	1910	1,874,014
1890	1,603,506		

The population of Alsace-Lorraine has considerably increased between 1871 and 1910. It has grown during that period by 324,276, or by little more than 20 per cent., while during the same period the population of France has increased only from 36,190,000 to 39,528,000, or by a little less than 10 per cent. Only during two Census periods the population of the two provinces decreased. The substantial increase of the Alsatian population and its small diminution during only two Census periods would seem to indicate that the conquered peoples are indeed as satisfied with their new masters as the Germans contend. However, if we turn to the

German compiled and German published official statistical abstract of Alsace-Lorraine and analyse the figures contained in it, we shall see a picture which differs very widely from that which is provided by the Censuses. In 1871 Alsace-Lorraine had 1,549,738 inhabitants. If there had been no emigration from that country it should have had in 1910, not 1,874,014 inhabitants but 2,476,544 inhabitants, owing to the yearly excess of births over deaths, and owing to immigration from Germany and other countries. This is borne out by the following figures:

Population of Alsace-Lorraine in 1871 (page 1) ..	1,549,738
*Excess of births over deaths, 1872–1911 (page 29)	554,984
Germans and foreigners at Census of 1910 (page 17)	371,822
Total	2,476,544

As the population of the provinces was in 1910 only 1,874,014, it appears that no fewer than 602,530 people have been lost to Alsace-Lorraine by emigration beween 1871 and 1910. That is exactly 40 per cent. of the original number of inhabitants Emigration from Alsace-Lorraine has been caused, not by economic pressure, but by political dissatisfaction, and it has been on an unprecedented scale. It beats all established records. Very likely this gigantic figure of emigration seriously understates the actual fact, for many of the children of immigrant Germans and foreighers who were born in Alsace-Lorraine—they should number at least 100,000—are, of course, described in the Census as native Alsatians and Lorrainers. It follows that, probably, at least 700,000 have left their homes.

The revelations of the statistical abstract are so startling that it seems necessary to test the correctness of the

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* As the figures for 1871 are not available, those for 1911 have been used instead.

foregoing figures by calculating the loss caused by emigration in a different way. Page 48 of the Year-Book contains a table which gives the loss or gain which the civil population of Alsace-Lorraine has experienced during every one of the Census periods. It supplies us with the following extraordinary picture:

NET GAIN OR LOSS THROUGH MIGRATION.

Year.	*Male.*	*Female.*	*Total.*
1871–1875	– 44,490	– 26,471	– 70,970
1875–1880 . .	– 15,230	– 20,605	– 35,835
1880–1885 .. .	– 31,792	– 27,520	– 59,312
1885–1890 .. .	– 18,915	– 19,076	– 37,991
1890–1895 ..	– 18,125	– 16,409	– 34,534
1895–1900 ..	+ 5,677	– 8,333	– 2,656
1900–1905 ..	+ 6,767	– 2,813	+ 3,954
1905–1910 ..	– 16,544	– 13,751	– 30,295
Total ..	– 132,661	– 134,978	– 267,639

The tremendous and unceasing outflow of population which has occurred during all Census periods except a single one is particularly striking if we remember that there has been an enormous immigration into Alsace-Lorraine both from Germany and other countries, and that the present table gives only the excess of emigration over immigration, but by no means the total emigration.

It is usually believed that only young men have left Alsace-Lorraine in order to escape compulsory service in the German Army. The official statistics show that the number of women who, on balance, have emigrated from that country has been even greater than that of the men. The figures given show that, on balance, Alsace-Lorraine has lost between 1870 and 1910, 267,639 people by emigration. However, if we wish to find out how many Alsace-Lorrainers have actually left their country we must, of course, add to the figures given the Germans and foreigners who were enumerated in those provinces at the Census of 1910. Such a calculation yields the following result:

Excess of emigration of civil population over immigration, 1879–1910 (page 48)	267,639
Germans and foreigners in Alsace-Lorraine in 1910 (page 17)	371,882
Total	639,521

This calculation and the previous one yield very similar results. The difference of 36,991 between the two is no doubt due to errors of detail which are inseparable from population statistics. If we add to this figure the children of immigrant Germans and foreigners, probably at least 100,000, who are officially described as Native Alsatians, we arrive at the full loss of population which the two provinces have suffered since 1871. French authorities habitually state that Alsace-Lorraine has lost through emigration 500,000 inhabitants. The figure usually given is not very convincing on account of its roundness From the official German statistics it appears that, not allowing for the children of immigrant Germans and of foreigners who are described as Native Alsatians and Lorrainers, the two provinces have lost by emigration either 602,530 or 639,521 people, of whom about one half were women. That is the most damning evidence as to the effect of Germany's rule.

It will be noticed that I assume that all the Germans and foreigners dwelling in Alsace-Lorraine have migrated into the country since its annexation. During the turmoil of war there were probably few Germans and other foreigners in the country. Besides, against the number of Germans and foreigners who were in Alsace-Lorraine in 1871 may be set part of the children of Germans and foreigners born in Alsace-Lorraine who are now classed as Alsatians and Lorrainers.

In 1910 there were in Alsace-Lorraine 371,822 Germans and foreigners. Of these, 295,436 were Germans and 76,386 were foreigners Let us now consider the composition of this immigrant population.

The 295,436 Germans can be classified as follows:

Male civilians ..	108,444	Citizens of Prussia	174,468
Females	111,494	,, ,, Bavaria	42,013
Soldiers from Germany	75,498	,, ,, Baden ..	39,495
		,, ,, the other States	39,460
Total ..	295,436	Total ..	295,436

It will be noticed that the Prussian element is by far the strongest in Alsace-Lorraine. We can therefore not wonder that the country is not being Germanised, but Prussianised.

Let us now inquire into the occupations of the Alsatian natives and the immigrant population According to data furnished by the German Census of Production of 1907, which may be found on page 25 of the Alsatian Statistical Year-Book, the people gainfully occupied in Alsace-Lorraine were classed as follows:

	Born Alsatians.	*Germans and Foreigners*
In agriculture ..	327,482	11 684
In industry	270,814	79,495
In commerce and trade ..	73,111	24.433
In domestic service	7.630	2,653
In the army	6.291	68.257
In the Civil Service and the professions	22,905	11,930

The vast majority of the immigrant Germans and foreigners are engaged in the most profitable occupations in industry and commerce. The proportion of immigrants to natives is particularly great in the Civil Service and in the learned professions, which are almost monopolised by Germans On the other hand, the proportion of immigrants is quite insignificant in agriculture, which has been allowed to remain a native monopoly. While Germans, and particularly Prussians, have occupied all the best administrative positions and have crowded into all the well-paid occupations, the natives have become hewers of wood and drawers of water. The hundreds of thousands of Alsatians who have left their country since 1871 have been replaced by Germans from Germany and by foreigners, especially by Italians and Poles. In this way the country has to some extent been denationalised. However, it should not be thought that the 600,000 inhabitants of Alsace-Lorraine who have emigrated have abandoned their native soil impelled by the spirit of adventure—that they have gone to oversea countries Between 1902 and 1911, for which years alone there are official figures on page 49 of the Statistical Abstract, oversea emigration from the conquered provinces came only to about 500 per year. The vast majority of the emigrants have left Alsace-Lorraine for France. They have thus shown where their sympathies lie.

A certain number of Alsatians have gone to Germany. In 1907, at the time of the Industrial Census (see page 26 of the Year-Book), 71,248 people born in the two provinces dwelt in Germany. Of these, 11,884 were soldiers, officials, etc. Of the remaining 59,364, the great majority were agricultural and industrial labourers and their families. In this connection it should be mentioned that the German Government distrusts Alsace-Lorraine to such an extent that the two provinces are garrisoned almost exclusively by German troops, while the majority of the Alsatian recruits are distributed all over Germany. In 1910 the garrison of Alsace-Lorraine was composed of 75,498 Germans and only 6,778 natives of the country.

According to the Census of Production the vast majority of the immigrant Germans and foreigners have, as has previously been shown, gone into trade, industry, the Civil Service, the learned professions, etc. The new-comers have filled the towns, and have abandoned the countryside to the original inhabitants. The following table, compiled from page 296 of the official Year-Book, shows the composition of the population of some representative towns:

	Alsace-Lorrainers.	*Germans.*	*Foreigners.*
Strassburg	113,471	60,774	4.646
Mulhouse	72,584	16,808	5.649
Metz	29,136	35,762	3.700
Colmar	34,480	8,219	1.109
Algringen	1,556	6,644	1,276
Deutschoth	1,386	1,510	3,397
Diedenhofen	6,038	6,799	1,347
Dieuze	2,450	3,273	129
Grossmoyeuvre	3,478	3,146	2,931
Hayingen	5,064	3,172	3,246
Kleinrosseln	2,458	1.329	1,825
Morchingen	1,632	5,247	87
Montigny	5,152	8.288	577
Nilvingen	2,383	1.842	1,570
Sablon	4.656	5,477	587
St. Avold	2,399	3,884	117

It will be observed that the number of Germans and of foreigners is greatest in the large towns, and that the proportion of Germans and foreigners is heaviest in those numerous small manufacturing and mining towns which have recently sprung up. In Metz, with its large garrison, there are more Germans than natives. In the iron and coal centres, such as Algringen, Diedenhofen, Mörchingen, Montigny and others, there are also more Germans than natives. In some of these towns there are three or four Germans to every single native. In others the foreigners are as numerous as the natives. In Deutschoth there were three times as many foreigners as Alsace-Lorrainers. On many points the natives of Alsace-Lorraine are thus being crowded out.

The Germans pride themselves on having awakened and developed the sleepy towns of Alsace-Lorraine. Some, especially the commercial and industrial districts, have indeed grown rapidly in population since 1871, but others have declined, as the following table (page 292 of the official Abstract) shows:

	1871.	1910.
Strassburg	85,654	178,891
Metz	53,623	68,598
Mulhouse	52,892	95,041
District of Molsheim	74,910	67,069
,, ,, Schlettstadt ..	78,162	67,581
,, ,, Weissenburg ..	62,333	56,579
,, ,, Rappoltsweiler ..	67,102	58,151
,, ,, Château-Salins ..	52,801	45,303
Commune of Algringen ..	367	9,476
,, ,, Nilvingen ..	273	5,795
,, ,, Sablon	1,039	10,720
,, ,, Deutschoth ..	1,050	6,293
,, ,, Kneuttingen ..	937	5,612

While between 1871 and 1910 the population of Strassburg, Metz, Mulhouse, and of the mining towns at the bottom of the table, has increased considerably, that of the districts of Molsheim, Schlettstadt, etc., has substantially decreased.

The towns of Alsace-Lorraine have prospered during the German occupation, but it is a serious error to believe that they had been stagnant before 1871. That may be seen from the following figures, which are taken from page 292 of the official Year-Book:

POPULATION OF—

Year.	*Strassburg.*	*Mulhouse.*	*Metz.*	*Colmar*	*Gebweiler.*	*Hagenau.*	*Markirch.*
1800	48,470	6,628	34,401	13,396	2,802	7,009	6,364
1871	85,654	52,892	53,623	23,311	11,350	11,388	12,322
1910	178,891	95,041	68,598	43,808	13,024	18,868	11,778

Under the French Government the whole country, and particularly the textile centres, such as Mulhouse and Gebweiler, were developed. Under Germany's domination the textile industries, deprived of the French market, began to languish. On the other hand, of recent years the iron and steel industries have mightily developed, because two Englishmen, Sidney G. Thomas and Percy C. Gilchrist, discovered in 1878 a way of treating the vast deposits of phosphoric iron ores of Alsace-Lorraine. Hence we find that the population of certain communes, such as Algringen, Nilvingen, etc., has grown tenfold, twentyfold and more.

The Germans have endeavoured to Germanise Alsace-Lorraine by means of the schools. Compulsory education has been rigidly enforced. In accordance with traditional Prussian policy, the new rulers of Alsace-Lorraine have vastly improved the intermediate and University education as well. They have opened libraries, museums and other learned institutions, and, having deliberately destroyed the celebrated Strassburg Library, with its irreplaceable manuscripts and other treasures, by bombardment, have created a huge new library in its stead. The progress of University and intermediate education in Alsace-Lorraine under German rule may be seen from the following figures, which have been extracted from the official Year-Book, pages 228 to 235:

Year.	STRASSBURG UNIVERSITY.			*Volumes in Library.*	*Intermediate School Attendance.*
	Alsatian Students.	*Other Students.*	*Teachers.*		
1872 ..	69	143	47	220,000	2,403
1882 ..	200	588	104	542,865	7,096
1892 ..	410	559	121	715,215	8,668
1902 ..	619	514	144	878,933	9,394
1912 ..	1,142	996	178	1,002,550	12,235

The intermediate schools and the Universities have been managed with the greatest efficiency. The German Government has sent to Strassburg some of its ablest scientists, teachers and administrators, and the result has been a steady and exceedingly rapid progress in the attendance of students and scholars. The fact that nearly half of the students at Strassburg are non-Alsatians testifies to the excellence of that institution. The Government has been lavish in giving grants in aid to the University, the library and other institutions, which have been palatially housed.

Germany has not only improved education in Alsace-Lorraine, but all the public services as well. The railway mileage of the two provinces has been increased from 768 kilometres in 1871 to 1,919 kilometres in 1910, at an expenditure of Mk.545,830,772. The Alsatian roads and waterways have been vastly improved, and so have been the police, sanitation, the administration of the law, general administration, etc. Even those Alsatians who are irreconcilably hostile to Germany recognise the efficiency of the German Government and the excellence of the work done. However, the efficiency and the excellence of the German institutions do not reconcile the native population to the high-handed, over-bearing and unsympathetic attitude of their new masters.

Alsace-Lorraine has undoubtedly prospered under German rule. Its progress in wealth and population is due chiefly to the exploitation of the vast mineral resources in the two provinces, and especially to the utilisation of the phosphoric iron ores. The development and the future possibilities of the mineral industry of the two provinces may be gauged from the following table which is taken from page 90 of the Statistical Year-Book:

PRODUCTION IN TONS.

Year.	*Black Coal.*	*Petroleum.*	*Iron Ore.*	*Potash.*	*Iron.*
1872 ..	290,206	4,093	684,600	—	222,070
1882 ..	581,525	2,169	1,359,141	—	359,117
1892 ..	692,510	12,942	3,571,426		733,768
1902 .	1,309,818	20,205	8,793,496	(1910) 64,822	1,630,220
1911 ..	3,033,436	43,748	17,754,571	197,142	2,908,230

Between 1872 and 1911 the production of coal and of petroleum in Alsace-Lorraine has increased tenfold and that of iron ore twenty-five-fold, while the production of manufactured iron has grown thirteenfold. Vast deposits of soluble potash of infinite value have only lately been discovered. The production of the potash-mines has trebled in a single year.

Germany has by far the largest iron industry in Europe. In 1913 she produced twice as much iron as the United Kingdom and four times as much as France. Germany's prosperity is based on the possession of an abundance of coal and of iron ore. The bulk of the iron ore employed in Germany comes from Alsace-Lorraine. In the *Gemeinfassliche Darstellung des Eisenhüttenwesens*, a handbook published by the Association of German Iron Producers, we read:

> The opening of the Minette ore deposits in Luxemburg, Lorraine, and the neighbouring districts of France and Belgium caused in these territories and the districts adjoining them a wonderful advance of the iron industry. The production of iron ore in Lorraine and Luxemburg has, within a very short time, overtaken the iron ore production of all other districts of Germany combined. The iron ore production of Lorraine and Luxemburg amounted in 1910 nearly to 60 per cent of the whole of the German iron output. The future of the German iron ore industry depends on these deposits
>
> According to Kohlmann's estimate, the iron ore in German Lorraine should approximately amount to 1,800,000,000 tons. At the present rate of production it should suffice for 130 years. Luxemburg has about 300,000,000 tons.
>
> The comparatively recent opening of new iron-mines about Nancy and Briey has become important not only for the iron industry of Lorraine, but also for that of Westphalia. Formerly the exports and imports across the Franco-German frontier were about equal as far as iron ore is concerned. For some time the import of French iron ore has more and more exceeded the exports of German iron ore to France, and a large part of the French iron ore goes to the Ruhr district.
>
> The Franco-German mineral trade tends to become more and more a trade in which the French exchange their iron ore against German coal, for there is a keenly felt lack of coal in the French iron-ore district near the German frontier.

The prosperity of the German and of the French iron industries depends on the vast deposits of iron ore which occur in the narrow district of Briey-Diedenhofen, on both sides of the Franco-German frontier. The opening of these deposits has caused a rapid increase in the production of iron ore in both countries. The progress in the production of iron ore among the four principal iron-producing nations of the world is depicted in the following table:

IRON ORE PRODUCTION (TONS).

Year.	*In Germany.*	*In France.*	*In United Kingdom.*	*In United States.*
1870	3,839,000	2,900,000	14,601,000	3,080,000
1875	4,730,000	2,506,000	16,074,000	4,080,000
1880	7,239,000	2,874,000	18,314,000	7,234,000
1885	9,158,000	2,318,000	15,665,000	7,782,000
1890	11,406,000	3,472,000	14,001,000	16,293,000
1895	12,350,000	3,680,000	12,817,000	16,213,000
1900	18,964,000	5,448,000	14,282,000	26,332,000
1905	23,444,000	7,395,000	14,824,000	43,207,000
1910	28,710,000	14,500,000	15,470,000	57,800,000
1913	35,941,000	21,714,000	16,254,000	62,972,000

In 1870 the United Kingdom produced considerably more iron ore than Germany, France and the United States combined. In 1910 Germany and Luxemburg—the two are joined together, because Luxemburg belongs to the German Customs Union—produced practically as much iron ore as the United Kingdom and France combined. Between 1890 and 1900 Germany produced per year regularly from three to four times as much iron ore as France, but since then France has begun exploiting energetically the ores of the celebrated Briey district, and the result has been that French iron production has quadrupled since 1900, while German iron production has grown by only 84 per cent during the same time. The jealousy of the German iron and steel magnates of the rapidly increasing iron industries of France has, no doubt, been one of the causes of the war. In 1913

France produced considerably more iron ore than the United Kingdom.

While France's production of iron ore has quadrupled since 1900, her production of iron has increased at a much slower rate, because she lacks the coal required for smelting it. The German handbook of the iron trade previously mentioned states:

> The development of the French iron industries would have been a more favourable one if Eastern France did not lack coal. At the present moment (this was written in 1912) Germany furnishes already more than half of the coal used in the French iron ore district.

If coal and iron occur in districts separated from each other, one must either bring the coal to the iron or the iron to the coal. As, roughly speaking, three tons of coal are required for smelting a ton of iron, it is, as a rule, cheaper to take the iron to the coal districts and not the coal to the iron districts. Natural conditions and the manipulation of customs tariffs and freight rates by the German Government have compelled the French iron ore producers to sell constantly increasing quantities of their ore to the Germans, who have smelted it in the famous Ruhr district, where excellent coal abounds. The handbook of the German iron trade informs us:

> The French iron ore is sold in constantly increasing quantities to the Ruhr district. This process has been greatly favoured by applying the Minette ore railway freight tariff to the railway stations on the French frontier.

While the Germans have smelted the bulk of the iron ore produced in Lorraine in the Ruhr district, they have treated part of it in Alsace-Lorraine itself, where the production of iron has increased from 222,070 tons in 1872 to 2,908,230 tons in 1911. They were able to do this because coal can be carried very cheaply by water all the way from the Ruhr coalfield to the iron-mines of Alsace-Lorraine. The importation of German coal into Alsace-Lorraine has increased steadily and very greatly from year to year.

The official facts and figures supplied in these pages clearly prove that the Germans have not succeeded in gaining the affections of the inhabitants of Alsace-Lorraine; that, on the contrary, they have estranged them, and have caused hundreds of thousands to exile themselves, to turn towards France. The outbreak of the present War led to a further exodus of Alsatians and Lorrainers to France on the one hand, and to more severe measures of repression and persecution on the part of Germany on the other hand. In view of the official record of the relations between the Alsatians and the Germans, in view of the fact that the Germans have treated the inhabitants of the two provinces, not as lost brothers, but as irreconcilable enemies, it is obviously idle to assert that Alsace-Lorraine is historically a German land, and that its inhabitants are Germans by race, language, descent, and sympathy, and that they are satisfied with their lot and wish for no change of government. The Alsatians and Lorrainers have indicated, not merely by words, but by deeds, that they wish to be reunited to France, and if the principle of nationalities and of democracy has any meaning, it follows that their desires should be fulfilled at the Peace.

The loss of Alsace-Lorraine has never been forgotten by the people of France. Most Frenchmen and most sympathisers with France desire, for sentimental reasons, that Alsace-Lorraine should be returned to France. However, there are also very important practical reasons in favour of that policy. In 1871 Germany, inclusive of Alsace-Lorraine, had 41,000,000 inhabitants, and

France, without these provinces, had 36,000,000 inhabitants. Before the outbreak of the present War Germany had 67,000,000 people and France had 40,000,000 people. Since the Peace of Frankfort the population of the one country has increased by 26,000,000 and that of the other by only 4,000,000 people. Germany's population has increased since 1871 with amazing rapidity, owing to the enormous development of the German manufacturing industries. Their wonderful expansion has chiefly been due to Germany's wealth in coal. On the other hand, France's population has remained almost stationary because France lacks coal. If France should regain Alsace-Lorraine she would receive 2,000,000 new citizens. There would then be 42,000,000 Frenchmen as against 65,000,000 Germans. However, she might in addition obtain millions of further citizens if the possession of Alsace-Lorraine was coupled with provisions which would enable France to develop the manufacturing industries of the country, and particularly to exploit the vast iron-ore fields of Alsace-Lorraine over which she would obtain control.

Coal and iron are the twin foundations of modern manufacturing. Both are equally indispensable in war. Coal and iron provide arms, munitions, ships and military supplies of every kind, and their possession and exploitation lead to a vast increase of population, as I have shown in the previous chapter. It will probably be better for the people of the world if by far the largest ironfield of Europe should be, not in Germany's hands, but in the hands of France. The loss of her largest ironfield to France would undoubtedly weaken Germany's military power, but it would not correspondingly increase France's strength, unless that country was given at the same time a sufficiency of coal wherewith to smelt the iron ores of Alsace-Lorraine. The two provinces contain apparently little coal. Close to them lies the Saar coalfield, which Prussia detached from France after the Napoleonic Wars. Many Frenchmen demand the return of the Saarbrücken and its coal-mines in addition to that of Alsace-Lorraine. However, the possession of the Saar district, though valuable for sentimental and practical reasons, would not benefit very greatly the French iron industry and France's general industries. The Saar coalfields are comparatively unimportant, and the coal is poor in quality and not very suitable for smelting. Therefore the Germans have treated the iron ore of French and German Lorraine with coal from the Ruhr district. They have smelted it partly in the famous Dortmund-Essen coal district, partly in Alsace-Lorraine itself. They could transport coal cheaply from Dortmund to Lorraine, because the two districts are connected by waterways. In a table previously given it was shown that between 1872 and 1911 iron production in Alsace-Lorraine had increased from 222,070 tons to 2,908,230 tons. In 1911 Alsace-Lorraine alone produced as much iron as did all France in 1904. If the stipulations of the Peace should enable France to obtain all the Ruhr coal she requires, she could at a stroke double her iron production, and might create in Alsace-Lorraine a manufacturing district similar to the celebrated Rhenish-Westphalian district, where on an area no larger than a small English county six million people live. The population of the two provinces might be doubled and quadrupled within a few decades.

If the Peace should bring to France the invaluable gift of a sufficiency of coal, not only the industries of Alsace-Lorraine, but of all France, would flourish as never before. If, on the other hand, France should receive at the Peace only Alsace-Lorraine, the iron ore contained in the country would be of little value to the French nation. It would merely enrich a few mineowners and provide work for some thousands of miners. The iron ore of Diedenhofen and of Briey would either remain unutilised or would have to be exported for smelting. As the Ruhr coalfield is most conveniently situated, France would be absolutely dependent on Germany's coal for the prosperity of her industries, and the German Government would undoubtedly exploit that position to the utmost. It would strive to develop the industries of Germany and to stifle those of France, and the consequence would be that Germany would continue to grow rapidly in wealth, industrial strength, population and warlike power, while France would remain stationary and would in course of time become Germany's vassal.

By receiving Alsace-Lorraine with an adequate supply of coal France would obtain an actual increase of 2,000,000 inhabitants and a potential increase of many millions of her population. An ample supply of coal would double and quadruple the population of Alsace-Lorraine, and would undoubtedly speedily increase the birth-rate throughout France, while the loss of her iron and the stagnation of her iron industry would tend to limit the increase of population in Germany. The economic factor alone might create a healthy balance between the two countries.

According to the most reliable geological estimates, the Dortmund-Essen district contains far more coal than the whole of the United Kingdom. The Westphalian district can therefore easily spare all the coal which France needs. If the War should end in the victory of the Allies, France should receive not only those territories which are in Germany's hands and to which France has a just claim, but she should be given at the same time conditions which will allow the sorely tried French people to prosper and to increase. Germany might pay the indemnity for damage done to France partly in coal.

CHAPTER XII

THE ECONOMIC POSITION AND FUTURE OF ITALY*

MANY Englishmen view Italy's attitude during the War with somewhat mixed feelings. They are full of admiration for the gallantry and generous determination with which in May, 1915, at a time when the outlook for the Allies was extremely dark, Italy resolved to fight for the Right and drew her sword regardless of the consequences. At the same time they are greatly puzzled by certain aspects of Italian policy and by certain manifestations of the national will which seem scarcely reconcilable with Italy's high purpose and ideal motives. They have learned with surprise that at the beginning of the War many Italians, wishing to maintain a passive neutrality to the end, passionately opposed Italy's participation in the War and considered the intervention of their country a serious blunder, if not worse, and they are still more puzzled when they are told that even now many Italians distrust France and England and would welcome a peace by agreement with the Central Powers. Moreover, they cannot understand why many of those Italian idealists who have gone to war in order to vindicate the right of nationalities to govern themselves, and who assert that they are fighting in order to free the Italians of the Trentino and of Trieste from an alien yoke, have demanded that their country should acquire by force territories

* From *The Nineteenth Century and After*, February, 1918.

inhabited by Greeks and Serbians without regard to the wishes and the national claims of their inhabitants. The policy of absolute rulers is shaped by their personal ambitions, while that of democratic nations springs from their pressing needs. Italy, like England, is a crowned democracy. Necessity, not ambition, dictates her policy. Unfortunately, the national needs of Italy are not sufficiently known abroad. In the following pages an attempt will be made to describe and analyse as exhaustively as possible Italy's position and her national desires and requirements, by means of the Italian Government publications, such as the Censuses, the Agricultural and Industrial Reports and the excellent *Annuarii Statistici Italiani*, which supplement the information which the author has gathered in the country. Such an analysis may do a great deal of good. It should make understandable Italy's attitude and policy, and free it from the suspicion of ambiguity. A complete understanding of Italy's vital needs may conceivably lead to certain measures on the part of the Allies which will create the closest intimacy between Italy and her partners for decades and perhaps for all time. It may lead to a new departure in international policy, to measures which may be summed up in the phrase "An Empire for Italy."

The Italians possess to the strongest extent the artistic temperament. They are a nation of warm-hearted idealists who are apt to be carried away by their feelings. Still, even the greatest idealists cannot afford to be guided exclusively by ideal motives, and to forget altogether the compelling demands of practical necessity. The Italians are at the same time idealists and business men. They went to war not only in order to defend the Right and to free their brothers who live in bondage on the other side of the Austrian frontier, as many Englishmen believe, but they were animated at the same time by a larger and a more practical purpose, although it was little mentioned. Even the most passionate Irredentists hoped that a victorious war would not merely give to their country the unredeemed provinces, but that it would establish the security and economic well-being of the people and give to the Italian nation the resources and the elbow-room which it urgently requires. It is not sufficiently realised that Italy's expansionist aims spring, not from the lust of conquest, from the desire of dominating and exploiting other nations, but from compelling economic necessity.

Countless men who have travelled in Italy have commented on the fact that the two great characteristics of the country are its beauty and its poverty. Many observers who remembered Italy's former wealth have attributed the poverty of the inhabitants to a too generous and enervating climate, to popular hostility to progress, to the influence of the Roman Catholic Church, to the exactions of the Italian landed nobility, or to sheer inborn laziness and stupidity The last explanation is the one most frequently heard. In reality the Italians are on the whole an exceedingly wide-awake, progressive, hard-working and frugal race, which for centuries has been kept back by foreign tyranny and misgovernment, and which is severely handicapped in the race for material success by the inadequacy of the natural resources The beautiful climate, the ever blue sky and the glorious vegetation of the country merely disguise its natural poverty to the casual visitor

The prosperity of a country depends upon the energy and intelligence of its inhabitants and upon a sufficiency of those natural resources which enable the people to make a living Agriculture and the manufacturing industries are the principal wealth-creating factors of a nation, for commerce by itself produces only little.

As Italy possesses scarcely any coal and iron, upon which the modern manufacturing industries are based, she depends for her existence chiefly on her rural industries, and the progress of these is greatly impeded by the soil, configuration and climate of the country, and by the insufficient quantity of land available for agricultural purposes. Italy is one of the most densely populated countries in the world, as the following figures will show:

	Inhabitants per Square Mile.
United Kingdom	372·6
Italy	313·5
Germany	311·0
France	191·2
Spain	100·6

It will be noticed that per square mile the population of Italy is three times as great as is that of Spain, that it is more than 50 per cent. greater than that of wealthy France; that it is somewhat greater than that of Germany, which is blessed with huge agricultural plains, many navigable rivers, and with inexhaustible mineral and industrial resources; and that it is almost as great as that of the United Kingdom itself.

Before considering Italy's agriculture it should be pointed out that agriculture, even if carried on under the most favourable conditions, is far less potent as a wealth-creating factor than is manufacturing. The Americans produce in their gigantic country some of the most valuable crops in the world. Among the nations of the world the United States have the largest production of wheat, maize, oats, tobacco, cotton, cattle, pigs, etc. Yet, according to the American Census of Production of 1910, the value of all American crops was in 1909 only $5,487,161,223, while the value of all manufactured goods produced in that year amounted to no less than 20,767,546,000 dollars, or almost four times as much.

Agriculture is carried on most easily and most profitably on the level ground of sheltered and well-watered plains. A glance at the map shows that Italy is an exceedingly mountainous land, that the proportion of level plain is very small. As the large forests which formerly covered the Italian hills were ruthlessly cut down in the past, the earth which covered them was washed into the valleys The hills became barren, and the consequence is that the Italian mountain streams dry up in time of drought and become raging destructive torrents when it rains. Modern Italy is endeavouring with infinite labour to reafforest the mountains and to control the streams

Italy possesses not only a totally insufficient proportion of level ground, but a very large part of the Italian plains consists of marshes and swamps. Moreover, the Italian plains, and the uplands too, are stricken by malaria, which is almost universal Malaria is a notifiable disease in Italy. In 1914 no fewer than 214,092 cases of malaria were reported to the authorities Owing to the energetic steps taken by the Italian Government, which is draining swamps, introducing good sanitation, providing free quinine for the poor, etc , the deadliness of the scourge has much diminished The deaths from malaria have thus been reduced from 13,358 in 1901-1902 when the State began the distribution of quinine, to 2,042 in 1914 Still, malaria debilitates a large part of the population. The prevalence of this disease has forced millions of Italians to abandon the plain where they have to work and to live in towns on the hills. Hence farmers and labourers lose many hours every day in going to and from their work, and in carting produce of every kind, and even water, up and down the hills which they inhabit.

The Italian climate, which seems so generous to the tourist, is, after all, not very favourable to agriculture. The country suffers frequently from drought, which plays havoc with the harvest. That may be seen from the startling fluctuations in the produce of the great staple crops. In 1909 Italy produced 61,772,710 hectolitres of wine. In 1910 she produced only 29,293,240 hectolitres, or less than half as much In 1909 she produced 2,559,200 hectolitres of olive oil, but in 1910 only 1,384,600 hectolitres, or about half the former quantity. Between 1911 and 1912 the olive-oil production declined from 2,422,300 hectolitres to 958,000 hectolitres, or to nearly one-third; while the important chestnut crop fell from 8,290,000 quintals in the former year to 4,980,000 in the latter year. Between 1914 and 1915 the wine production sank from 43,046,000 hectolitres to 19,055,000 hectolitres, or to less than one-half.

Italian agriculturists have endeavoured to overcome their difficulties by unremitting and intelligent labour. They have drained swamps, planted forests, regulated the mountain torrents and irrigated the land subject to drought. They have introduced many exotic plants and animals. Thus, Italy produces vast quantities of tobacco, cotton, rice, maize, Indian figs, flax, hemp, silk, sugar, etc., and buffaloes wallow in the swamps. Besides, they have hewn countless terraces out of the barren rocks, and have covered them with earth, sea-weed and other manure carried up in baskets. Hence mountains which consisted formerly of sheer rock are now covered with prolific orange and lemon groves vines, etc.

Owing to the care and labour bestowed upon agriculture, the production of Italy's rural industries has rapidly and continually increased, as the following representative figures show:

PRODUCTION OF—

Year.	*Grain.*	*Maize.*	*Wine.*
	Quintals	*Quintals.*	*Hectolitres.*
Average 1879-1883	36,318,000	21,356,000	36,760,000
1911	52,362,000	23,796,000	42,654,000
1912	45,102,000	25,063,000	44,123,000
1913	58,452,000	27,532,000	52,240,000

Italy's agriculture has prospered largely because, under Government auspices, scientific processes have been applied to it It is worth noting that the consumption of superphosphates by the Italian agriculturists has increased from 4,311,512 quintals for the average of the years 1901-1903 to 10,409,663 for the average of the years 1910-1912.

The number of animals kept has vastly increased. Between 1876 and 1908, in which years live-stock censuses were taken, the following changes have occurred:

Year.	*Horses.*	*Mules.*	*Asses.*	*Cattle.*
1876 ..	625,957	292,983	498,766	3,489,125
1908 ..	955,878	388,337	849,723	6,218,227

Year.	*Sheep.*	*Goats.*	*Pigs.*
1876	6,977,104	1,688,478	1,553,582
1908	11,162,926	2,714,878	2,507,798

It will be noticed that during the period under consideration very important increases have been universal. The great progress in Italy's agriculture may furthermore be seen from the rapid increase of certain exports, such as the following:

EXPORTS OF—

Year.	*Maccaroni, etc.*	*Oranges and Lemons.*	*Cheese.*
	Quintals.	*Quintals.*	*Quintals.*
1893	89,148	1,978,134	66,397
1903	265,904	3,095,860	150,405
1913	709,921	4,365,409	328,044

Although Italy's agriculture has marvellously progressed, the income derived from it is comparatively small. The prices of Italian wine, oil, oranges, lemons, figs, etc., have been depressed by the competition of France, Spain, United States, Asia Minor, North Africa, and of other countries which can produce and export very cheaply. Hence the Italian agriculturists derive only small profits. Life is a very hard struggle for them.

Italy's soil, with the exception of the Lombardo-Venetian Plain and other favoured spots, is semi-arid and poor. Unfortunately, the sea which washes Italy's extensive shores does not compensate the country for the insufficiency of its agricultural resources, for the sea lacks fish. Exactly as it is widely believed that Italy's agriculture is exceptionally prosperous because the country produces luxury foods such as oranges, olives, figs, almonds, peaches, wine, etc., even so it is often assumed that Italy's fishing is a great source of wealth because, apart from fish, the Italian fishermen gather such valuable articles as coral and sponges. In 1912 the total value of all the fish caught came to £951,000, and that of all coral and sponges gathered to only £54,400. In the aggregate the Italian fishing industry produced in 1912 a harvest worth £1,005,400. The insignificance of that amount may be gauged from the fact that in the same year the British fisheries yielded fish and shellfish to the value of £13,234,426. In Italian fishing, as in Italian agriculture, the maximum of labour yields only a minimum of profit.

Italy's difficulties in making a living by agriculture and fishing are great, but her difficulties in developing her manufacturing industries are still greater. Modern manufacturing is founded upon coal and iron. Unfortunately, among the great nations of the world Italy is poorest in the most essential minerals. Her coal production compares with that of some other countries as follows:

COAL AND LIGNITE PRODUCED IN 1912.

	Tons.
In United States	525,427,837
In United Kingdom	260,416,338
In Germany	255,810,094
In Belgium	22,972,000
In Italy	663,812

The United Kingdom produces more coal in a single day than Italy produces in a whole year, and little Belgium produces thirty-three times as much. Moreover, the trifling quantity of coal raised in Italy is of very low quality.

Italy's lack of iron ore is equally striking, as will be seen from the following table:

IRON-ORE PRODUCTION IN 1912.

	Tons.
In United States	60,440,100
In Germany	22,692,000
In France	19,500,000
In United Kingdom	14,011,700
In Italy	582,066

It is believed by many that Italy derives a large income from the exploitation of her minerals, because she produces considerable quantities of sulphur, tin and beautiful marble. However, the competition of other nations has kept prices so low that Italy obtains only a trifling income from her mineral resources Her relative poverty in that respect will clearly be seen from the following figures

VALUE OF ALL MINERALS PRODUCED IN 1912

	£
In United States	448,794,498
In United Kingdom	131,220,853
In Italy	3,768,000

In order to supply her railways, ships, factories, gasworks, etc., with the necessary fuel, Italy must import the bulk of the coal used, which thus is very expensive to the consumers. In 1912, for instance, when she produced 663,812 tons of coal, she imported from abroad 13,305,000 tons, or twenty times as much.

Italy's iron and steel industry depends on foreign countries not only for its coal, but also for the bulk of its iron, which is imported partly in the form of ore and partly in that of metal. Notwithstanding her lack of coal and iron, Italy has succeeded in rapidly increasing her production of steel. While in 1900 she produced only 115,887 tons of steel, in 1912 she produced 801,907 tons. It is obvious, however, that the position of the Italian iron and steel industry is exceedingly precarious owing to its complete dependence upon imported coal and iron

Exactly as the Italian agriculturists have succeeded in cultivating the barren rocks by converting them into prolific gardens, the Italian manufacturers have learned how to manufacture without coal. Electrical and other machinery has been called in to replace steam-power. The development in the use of power in the manufacturing industries has been as follows according to the last Industrial Censuses:

HORSE-POWERS IN THE MANUFACTURING INDUSTRIES.

Year.	*Steam.*	*Hydraulic.*	*Gas, Oil-engines, etc.*	*Total.*
1903 ..	289,735	418,481	26,058	734,274
1911 ..	471,043	951,836	197,525	1,620,404

Between 1903 and 1911 the industrial horse-power employed has more than doubled, and the progress made has been particularly remarkable in the case of gas and oil engines and of hydraulic power. Happily, Nature has given to the Italians an abundance of power in the form of waterfalls which can be converted into electricity. According to Government investigations, at least 5,000,000 horse-powers are available, and the conquest of the Trentino should furnish an additional 250,000 horse-powers. Vast power can also be provided by the formation of artificial lakes which the Government has planned. The Italian authorities intend not only to provide an abundance of electrical power for industrial purposes, but to electrify the whole of the national railways, eliminating the use of coal as far as possible Possibly science will succeed in improving electrical smelting to such an extent that the Italian iron and steel industries also will become independent of imported coal.

Among the most progressive Italian manufacturing industries are the textile industries, the production of machinery—Italian silks, cottons, motor-cars, etc., are universally appreciated—the electrical industry, the chemical industry, etc. The expansion of the chemical industry may be gauged from the fact that Italy's production of sulphuric acid increased from 59,362 tons in

1893 to 644,713 tons in 1913. Similar increases have taken place in other chemical productions.

The energy and success with which Italy has developed her manufacturing industries may be seen from the rapid increase in the imports of certain raw materials employed in manufacturing and in the exports of manufactured goods.

IMPORTS.

Year.	*Cotton.*	*Wool.*	*Coal.*	*Copper and Brass.*
	Quintals	*Quintals.*	*Tons.*	*Quintals.*
1893 ..	987,080	89,983	3,724,401	30,426
1903 ..	1,541,646	153,542	5,546,823	60,963
1913 ..	2,018,808	286,391	10,834,008	502,802

EXPORTS.

Year.	*Silk Textiles.*	*Cotton Thread.*	*Cotton Cloth.*
	Lire	*Quintals.*	*Quintals.*
1893	18,866,000	7,087,000	28,416,000
1903	68,454,000	92,018,000	172,916,000
1913	108,225,000	146,142,000	493,946,000

Of course, there are industries which have not prospered. Still, on the whole the Italian industries have progressed very greatly Between 1893 and 1913 the imports of all raw materials used in the industries increased from 635,000,000 lire to 2,092,000,000 lire, or more than threefold, while the exports of all partly or wholly manufactured goods increased during the same period from 468,000,000 lire to 1,389,000,000 lire, or almost exactly threefold.

While Italian agriculture and the Italian manufacturing industries have been heavily handicapped by Nature, Italy's commerce has been similarly handicapped both by Nature and by the action of man. The length and narrowness of Italy's territory and the difficulty of carrying goods from one seashore to the other because of the intervening mountain walls have been a great impediment to internal commerce. Owing to its configuration, cheap inland transport, which is one of the mainsprings of commerce, is lacking. Italy possesses no navigable rivers except in the Lombardo-Venetian Plain, and scarcely any canals, for shipping on rivers and canals is practicable only on level plains. Lastly, the construction of railways and roads is most expensive in Italy. Innumerable tunnels have to be bored through rocks, chasms have to be bridged, and both roads and railroads have frequently to be based upon enormous viaducts, which form so noteworthy a characteristic of the Italian landscape. Both railroads and carriage-roads have to overcome heavy gradients, which are very unfavourable to cheap and easy transportation We can, therefore, not be surprised that inland transport is comparatively dear and insufficiently developed, except in the Lombardo-Venetian Plain and other favoured spots.

Italy lies midway between the East and the West. The great wealth of ancient Venice, Florence and Genoa was due to the fact that these towns handled a large portion of the commerce which was carried to and fro between Central and Western Europe on the one hand and Asia and Africa on the other. Owing to their geographical position and to the piercing of the Alps by numerous tunnels, Venice and Genoa should still handle a very large portion of the international trade, to the great benefit of Italy. Unfortunately, both Germany and Austria have succeeded in depriving Italy of the bulk of her legitimate share in international commerce. By the preferential tariff of the State railways Germany and Austria-Hungary have succeeded in diverting the trade of South Germany, Southern Austria and Switzerland, which naturally should flow by way of Genoa and Venice, to Hamburg, Bremen, Antwerp and Trieste, to the great injury of the Italian merchants, the Italian railways, the Italian Merchant Marine and the Italian people.

Notwithstanding the difficulties caused by the unkindness of Nature and the selfishness of Germany and Austria-Hungary, Italy's trade and commerce have wonderfully increased owing to the energy, ability and industry of the people The expansion of Italy's oversea trade may be gauged from the following figures:

TONNAGE OF GOODS FORWARDED FROM AND RECEIVED AT ITALIAN PORTS.

Year.	*Tons.*
1883	10,629,027
1893	13,813,131
1903	19,419,876
1913	31,821,882

Since 1883 Italy's sea trade has exactly trebled, and during the last decade it has increased by more than 50 per cent

The development of Italy's internal trade may be seen by the wonderful development of her banks. The accounts of the Banca Commerciale, the leading institution, show the following progress:

Year.	*Capital.*	*Deposits*	*Balances.*	*Securities.*
	Lire.	*Lire.*	*Lire.*	*Lire.*
1895 ..	20,000,000	64,924,650	40,152,931	53,546,598
1905 ..	105,000,000	129,698,124	254,509,804	490,841,771
1913 ..	130,000,000	232,857,338	512,929,167	819,602,962

On December 31, 1916, the total assets of the Banca Commerciale came to 2,941,988,583 lire, or to £118,000,000. That bank ranks now among the foremost institutions of the world

The Italian people have not only worked hard in field factory and counting-house, but they have also saved hard The Italians are probably the most thrifty nation in Europe At any rate, it may be asserted that in no European country have popular savings accumulated more rapidly than in Italy The Italian Government Statistics supply us with the following most remarkable record·

DEPOSITS IN SAVINGS BANKS AND SAVINGS INSTITUTIONS.

	Lire.
1883	1,151,013,670
1893	1,977,025,416
1903	3,256,132,950
1913	5,796,151,626

These figures exclude the deposits in the Banks proper. Including these the deposits in 1913 amounted to 7,220,376,045 lire, or to about £300,000,000.

Only those who have lived in Italy or who have studied impartial and reliable records can realise the self-abnegation with which the Italian workers save in order to leave a competency to their families. Even the poorest workers—and the unskilled Italian labourers are wretchedly poor—put money by, stinting themselves of the very necessaries of life The thrift of the Italian labourers has attracted attention wherever they have gone. In September, 1907, the United States Department of Commerce and Labour published a most interesting Report on *Italian, Slavic and Hungarian Immigrants*, which shows that among the foreign immigrant labourers the Italians are by far the thriftiest. That fact is not based on vague estimates, but on comprehensive exact and comparative data furnished by many hundreds of observations made during a considerable space of time. We read, for instance:

> The average income per man for a representative month in 1905, for the 679 men shown above, was $34 49, the average cost of living was $7 20, and the average surplus over cost was $27 29
>
> The average income per man for a representative month in 1906, for the 1530 men shown, was $37 07, the average cost of living was $6 79, and the average surplus over cost was $30.28

It will be noticed that, roughly speaking, the Italian labourers lived on about 1s a day, saving the rest of their wage In the first example given the Italian labourers spent on themselves only one-fifth of their income, saving the remaining portion In the second they spent about one-sixth of their earnings, saving the remaining five-sixths. Whereas in the anthracite region Anglo-Saxon labourers pay for their board from $16 to $18 a month, and whereas Slavonic labourers paid from $10 to $12, the Italian labourers expended, according to the Report, only $5 per month. Unfortunately, many Italian labourers have undermined their health by exaggerated thrift. The American Report stated:

> Contractors have in many instances complained of the lack of strength of the Italian labourers in the United States, and have attributed it to insufficient food. The general manager of the leading contracting company in the Southern States, writing from Tennessee, says: "The main trouble with the Italian is that he does not eat enough to furnish him with the proper nourishment needed in the work. Of course, if a man is not properly fed he cannot do a good day's work. . . ."
>
> With this slender fare they cannot maintain their strength, and soon sink into the anæmic condition which precedes consumption. It is almost useless to point

out to them the necessity of more food to meet the harsher climate and heavier work of this country. They have come here to earn and to save money, and save it they will, at the expense of health and life.

It may be safely asserted that practically all Italians save However, savings deposits vary greatly in Italy. In the Northern provinces, where water-power is cheap and plentiful, and especially in the Lombardo-Venetian Plain, savings per head are high In the poor and backward South they are low. In the province of Lombardy the savings amounted in 1912 to 288·70 lire per head of population, but they came in Sicily to only 88·13 lire, and in the Abruzzi to only 72·02 lire per head of population.

It should be borne in mind that the savings deposited in the Italian banks are not all derived from earnings in Italy The Italian emigrants send their savings home, and their relatives place them into the savings banks for security. Italian Government officials and economists usually estimate that the Italian emigrants remit to the mother country at least 500,000,000 lire per annum. On the other hand, it should not be believed that the sums deposited in the savings banks represent the total of the popular savings A very large part of these is invested in freehold farms, houses and Italian Government Stock During the last twenty years at least £200,000,000 of Italian Government Stock has been bought abroad by the Italian people and has been sent to Italy. Two decades ago Italy held only about 50 per cent of the national debt. In 1913 the Italians held more than 80 per cent of their national debt. As the Italian business men invest their savings largely in their business, it is clear that the savings banks deposits have been vastly increased, and that the price of the Government Stock has been raised from year to year chiefly through the determined thrift of the poorer classes, through the savings of small farmers, shopkeepers, manual workers, etc. Every Italian banker knows that this is the case.

Study of Italian industrial conditions shows that not only agriculture, the manufacturing industries and commerce have rapidly progressed, but that the whole country has advanced, and that the working people have had a considerable share in the advance made. The capital of the co-operative societies has increased between 1906 and 1910 from 55,101,936 lire to 151,852,579 lire. In town and country the workers display increasingly a sturdy sense of independence

The material progress of the nation as a whole is evident to all who habitually visit Italy Moreover, it appears clearly from the Government statistics In 1894-1895 Italy had only 11,173 telephone subscribers By 1914-1915 their number had increased to 99,593 In 1897-1898, 186,862,000 units of electric light were used in Italy. By 1915-1916 their number had increased to 2,163,396,000 units.

Although the Italian Government and people have done their utmost to advance the country materially, intellectual progress has not been neglected The statistics relating to the Universities, technical schools, libraries, benevolent institutions, etc , show a rapid and uninterrupted advance The proportion of analphabets above six years for the whole of the kingdom was in 1872 69 per cent , in 1882 62 per cent., in 1901 48 per cent., and in 1911 38 per cent. The number of analphabets from 12 to 15 years old was reduced between 1901 and 1911 from 37·6 per cent to 24 6 per cent. Analphabets are getting very rare in the Northern provinces, where education is excellent. In 1872 there were large stretches of the country where 80 per cent of the population could neither read nor write.

From the facts and figures given in the preceding pages it will be clear that the Italian people, working and saving with the greatest determination, have achieved remarkable progress in every direction. Working and saving with heroic energy and self-denial, they have raised their country very considerably Nevertheless, Italy has remained poor and is unable to nourish her inhabitants. The reason is that the Italian population increases at a quicker rate than the national wealth During the last fifty years of the Census Italy's population has grown as follows

Population within the Present Limits of Italy.

Year.			
1862 ..	25,000,000	=	87·2 per square kilometre.
1872 ..	26,801,154	-	93·5 ,, ,, ,,
1882 ..	28,459,628	-	99·3 .. .. ,,
1901 .	32,475,253		113·3 ,, .. ,,
1911 ..	34,671,377	-	120·9 ,, ,, ,,

The rapid increase of the national population has forced the Italians, who formerly were a home-staying people, to emigrate in order to make a living Italian emigration has begun only recently, but it has increased at a rate which is positively terrifying to many patriotic Italians According to the figures furnished by the emigration authorities, Italian emigration has, since 1881, developed as given in table on p 314.

The increase of Italy's emigration is truly alarming In 1881 the bulk of the Italian emigrants went to European and to the Mediterranean countries close at hand, such as Tunis In 1913 the bulk of the Italian emigrants went to Transoceanic countries Between 1881 and 1913 the number of Transoceanic emigrants increased from 41,064 to the gigantic number of 559,566 The consequences of this enormous loss of population are revealed in the Censuses. Emigration is particularly great from the poorest provinces of Italy, from the South. It is fairly great from the Central provinces, and comparatively small from the Northern provinces, and especially from those which possess cheap and plentiful water-power and which are situated in the bountiful Lombardo-Venetian Plain. While the population of Lombardia, Venetia, Liguria, Emilia, is increasing rapidly and while that in the Marche, Umbria, Calabria, is almost stagnant, that of the Abruzzi, of Campania, apart from Naples, of the Basilicata and of parts of Sicily, has actually decreased

ITALIAN EMIGRATION

Year	*To European and Mediterranean Countries.*	*Trans-oceanic.*	*Total.*	*Immigrants Returning from Overseas.*
1881	94,768	41,064	135,832	?
1886	84,952	82,877	167,829	?
1891	106,056	187,575	293,631	?
1896	113,235	194,247	307,482	?
1901	253,571	279,674	533,245	?
1906	276,042	511,935	787,977	157,987
1907	288,774	415,901	704,675	248,428
1908	248,101	238,573	486,673	300,834
1909	226,355	399,282	625,637	134,210
1910	248,696	402,779	651,475	161,148
1911	271,065	262,779	533,844	218,998
1912	308,140	403,306	711,446	182,990
1913	313,032	559,566	872,598	188,978

Of the Italian emigrants, the vast majority, about 81 per cent., are men, and the result is that at the Census of 1911 the persons of the female sex were found to be far more numerous than those of the male sex in several provinces In the Abruzzi and Molisi, for instance, there were 767,893 females and only 662,813 males. In Campania there were 1,715,354 females and only

1,596,636 males. In Calabria there were 750,015 females and only 652,046 males Needless to say, the males who remain in the provinces from which emigration is particularly heavy consist very largely of old men and young boys Italy is losing by emigration the flower of her manhood

As the emigration problem is one of the most serious, if not the most serious, Italian problem, it is necessary to study it a little more closely Let us, then, inquire which countries are most attractive to the Italian emigrants According to the Government returns, Italian emigrants went in 1913 to the following countries

To France	83.435
To Switzerland	90,019
To Austria-Hungary	39.033
To Germany..	81.947
To United States	376,776
To Canada	30,699
To Argentina	111,500
To Brazil	31.952
To Australasia	1,682

A detailed analysis of emigration from the various Italian provinces shows that the men from the Northern provinces go principally to Europe - France, Switzerland, Austria-Hungary and Germany, which are near to hand; while the emigrants from the Central and especially from the Southern provinces go oversea, especially to the United States, Canada, Argentina and Brazil

It is highly significant that of the Italian emigrants about 81 per cent. are men and only about 19 per cent. are women As a rule, the men emigrate and leave their wives and children at home The Italians are intensely fond of their country and of their surroundings, and they abhor the idea of settling permanently abroad. They emigrate only in the hope of saving enough money to live in beautiful Italy. Herein lies the pathos of the great emigration movement, for naturally very many Italian emigrants are not able to return. Hence they remain abroad much against their will. Although the vast majority of Italian emigrants mean to leave their country only for a short spell, intending to come back as soon as possible, vast numbers have remained abroad. They have remained abroad either because they have not succeeded in accumulating enough money or because they discovered that they could make a better living abroad than in Italy. Naturally, many of the successful emigrants have sent for their families. Herein lies the reason that, although as a rule men only emigrate in search of work, 19 per cent. of the emigrants consist of women.

Let us now see where the bulk of Italy's emigrants have settled. Let us study the natural current of the stream. According to carefully drawn up estimates published by the Italian Emigration Commission, the Italians living outside of Italy in 1910 were distributed as follows:

In Northern and Eastern Europe	5,285	
In Western Europe (France)	444,660	
In Central Europe (Germany, Switzerland, Austria-Hungary)	406,000	
In Southern Europe	44,617	
		900,562
North Africa	181,027	
South Africa	10,892	
		191,919
North America	1,801,623	
South America	2,638,952	
Central America	4,481	
		4,445,056
Asia		12,500
Australasia		7,709
Total		5,557,746

During a few decades 5,557,746 Italians have settled abroad, and the great majority of these will probably not return. It will be noticed that the current of Italian emigration goes with approximately equal strength to Southern and to Northern countries. The number of Italians who have settled in North America and in Europe is almost exactly as large as that of the men who have settled in South America and in North Africa, where the climate approximates that of Italy. It is therefore obvious that the principal aim of the emigrant Italian is to find good work at a good wage, and that he does not care very much whether the country in which he works resembles Italy or is comparatively bleak and inhospitable.

The fact that the vast majority of Italian emigrants intend to leave Italy only for a short time, that they wish to return as soon as possible to the land of their birth and to their families, is apparent not only from the phenomenon that 81 per cent. of the Italian emigrants are men, but also from the Census which was taken on June 10, 1911. The Census forms contained questions relating to Italians who were living abroad. One of these questions asked for information regarding emigrants who were expected to return to Italy during the Census year. From the classification of the replies received it appears that 1,124,003 Italian emigrants were expected to return to Italy in 1911, according to the information supplied by their families. The impossibility of the return of 1,124,003 emigrants is obvious from the fact that, according to a table previously given, only about 200,000 emigrants return on an average every year from countries overseas. Of these 1,124,003 emigrants whose return was expected by their families during the second half of 1911, no fewer than 725,644 were reported to be in extra-European countries.

Within a very few years many American States have been swamped by a sudden inrush of Italians. In South America, where in 1910 there were 2,638,952 Italians, the Italian emigrants occupy proportionately a most important position. However, in the United States also the proportion of Italians is exceedingly great. According to the American Census of 1910, there were in the United States 1,343,070 Italians The significance of that number may be seen from the fact that there were at the same time only 876,455 English-born people in the United States, while England, Scotland and Wales combined accounted for 1,221,283 people in that country. As the population of Italy is approximately equal to that of England alone, the proportion of Italian people in the United States is 50 per cent. greater than that of the English people living in that country. In New York alone there were at the time of the Census 340,770 Italians, a larger number than the population of Palermo.

An analysis of Italy's economic position shows clearly that the poverty of the Italian people is due, not to their ignorance and laziness, as is frequently asserted by the ill-informed and the superficial, but to the great density of Italy's population, to its rapid increase, and especially to the extraordinary inadequacy of the natural resources, which impedes the development of Italy's agriculture, fishing, manufacturing industries and trade. Close study of economic Italy shows clearly that the Italians are earnest, intelligent and most industrious workers, who by unremitting toil and superhuman frugality and thrift have vastly improved their position, and who deserve general sympathy and support in their heroic struggle with adversity.

The full measure of Italy's difficulties is revealed by the statistics of her foreign trade, which give the following picture:

Year.	*Italy's Imports*	*Italy's Exports.*	*Excess of Imports over Exports.*
	Lire.	*Lire*	*Lire.*
1895 . .	1,187,000,000	1,038,000,000	149,000,000
1900 . .	1,700,000,000	1,338,000,000	362,000,000
1905 . .	2,016,000,000	1,705,000,000	311,000,000
1910 . .	3,246,000,000	2,080,000,000	1,166,000,000
1911 . .	3,389,000,000	2,204,000,000	1,185,000,000
1912 . .	3,702,000,000	2,397,000,000	1,305,000,000
1913 . .	3,646,000,000	2,512,000,000	1,134,000,000

Italy's foreign trade has two great characteristics. In the first place, it is quickly expanding. In the second place, it shows a considerable excess of imports over exports, and this unfavourable balance is continually and very rapidly increasing. Owing to the insufficiency of its agricultural soil and its mineral resources, etc., Italy is dependent upon foreign countries, not only for many raw materials, but also for a great deal of her food, especially wheat. Italy's economic position may briefly be summed up as follows. She buys from abroad vast quantities of indispensable food and of equally indispensable raw materials, such as coal, cotton, wool, iron, copper, etc., and she pays for these only in part with her exports, which consist very largely of luxuries. There remains a very considerable adverse balance to be settled, and she pays for the great and constantly growing excess of her imports, not, as does the United Kingdom, with the earnings of her shipping and the income derived from her foreign investments, both of which are insignificant, but with the labour of her emigrants. As she cannot export a sufficiency of goods, she is compelled to export men in order to be able to pay for her imports and to live. That is a wasteful and a very painful proceeding, which is bound to debilitate the nation.

As Italy imports necessities and exports chiefly luxuries, she finds herself in an unfortunate and a very dangerous position An analysis of Italy's exports shows that these consist principally of the following goods according to the order of their importance: silk and silk manufactures, cotton manufactures (largely luxuries), wine, dried figs, grapes, almonds, etc., cheese, olive oil, oranges, lemons, melons, tomatoes, etc., eggs, worked marble and alabaster, various manufactured luxuries, such as artistic furniture, glassware, lace, motor-cars, etc

For decades the nations of the world will have to save in order to pay for the War, and will have to restrict the purchase of luxuries, and especially of foreign luxuries. Taxation will remain very high, and imported luxuries will naturally be singled out for particularly heavy taxation. Hence Italy's exports of silks, wines, oranges, figs, almonds, olive oil, artistic furniture, etc., will probably be crippled Unfortunately, the Italians cannot turn from the production of luxuries to that of necessities. Wheat, beans, potatoes, etc., cannot be grown on the sweltering mountain terraces where vines, orange-trees, etc., flourish, nor can the Italian industries easily change from the production of artistic manufactures, which require the maximum of labour and the minimum of coal and of raw materials, to that of necessaries which require the minimum of labour and the maximum of raw material.

One of the most important Italian resources consisted in the stream of wealthy foreign visitors who before the War left every year hundreds of millions of lire in the country Among these visitors the Germans were by far the most numerous Owing to the necessity of thrift, people will for years abstain from travelling abroad. They will take holidays in their own country The Germans and Austrians will no doubt shun Italy

The economic position of Italy was serious enough before the War; it may become still more serious after its conclusion. Italy's imports will presumably be vastly increased in price, for food and raw materials will remain dear for many years. At the same time her exports will probably be vastly reduced, for the world will for many years not be able to afford purchasing foreign luxuries. Consequently Italy's unfavourable trade balance which was serious enough before the War, may increase at a startling, an unprecedented and almost an unbelievable rate. It follows that Italy will be able to pay for the necessaries which she has to import only by means of a vastly increased export of her citizens to foreign States, unless she obtains substantial relief from some quarter or the other. Emigration from Italy, which was colossal before the War, and which beat all international records, may after the Peace assume gigantic and truly calamitous proportions.

In 1914 and 1915 many Italian statesmen, politicians and writers were averse from Italy taking part in the War because they recognised that, though exceedingly rich in genius, in energy and in men, she is exceedingly poor in natural resources of every kind by the exploitation of which men live. They recognised that the savings which the people had accumulated during decades by their exertions and by a superhuman economy would quickly be dissipated, that the national working capital would disappear, that the War might yield the possession of the Trentino and of Trieste, but might nevertheless be ruinous to the country. Herein lay the reason that many Italian patriots considered it a grave mistake for Italy to abandon her neutrality. Their views are perfectly understandable.

Every Italian knows, of course, that the Italian people are kept in poverty and that they are forced against their will to emigrate in large numbers because the country lacks land for the pursuit of agriculture, and lacks the raw materials necessary for the energetic development of the manufacturing industries, especially coal and iron. The haunting thought and desire of all Italians has naturally been how to provide land and raw material, and particularly land, for the people Hence many Italian patriots hoped to obtain by the War not only the liberation of the politically enslaved Italians in Austria-Hungary, which is a purely ideal aim, but they hoped that the War would at the same time bring economic freedom to the Italians in Italy, and enable them to make a living under the Italian flag Therefore they desired that the War should yield to the Italian people the elbow-room and the natural resources which they urgently need, and as the Greek and Serbian territories are nearest at hand, they turned their eyes not unnaturally towards them, although they demanded the liberation of the Italians in Austria in the name of the principle of nationalities and of justice

If we consider matters dispassionately, it appears that the victory of the Allies may grant ample compensation to all the great nations leagued against Germany, Italy alone excepted. Russia, if she can still be called an Ally, the United States, the British Empire and the United Kingdom dispose of such gigantic latent resources of every kind that their development may pay, and may more than pay, for the War within a few decades The acquisition of Alsace-Lorraine will give to France huge deposits of potash and of mineral oil, and by far the largest iron deposits in Europe The exploitation of these may cover France's War expenditure and more If Germany should be made to pay adequate indemnities for the damage done by her armies, the smaller nations, which have suffered most, would naturally have the first call upon them Italy, on the other hand, who has shown the greatest gallantry in throwing her sword into the scales when the outlook was exceedingly threatening, might suffer greatly, for the economic value of the Trentino and of Trieste is only small.

The tables given in these pages show that the Italians who emigrate do not discriminate much between one country and the other, that they do not go in the greatest numbers to lands near by or to countries where the climate resembles that of Italy, but they go to any country where work and wages are plentiful Thousands of Italians go every year as far as the United States, Brazil and Argentina merely in order to gather in the harvest and then return to their native land

Many Italian patriots, seduced by the political and military advantages of propinquity, have advocated that Italy should endeavour to acquire territories inhabited by Greeks and Serbians, and that she should found colonies in North Africa, Asia Minor, etc Their wishes have, of course, been supported enthusiastically by Germans desirous of making mischief and by pro-Germans working in Italy. I believe that those Italians who see their ideal in a Greater Italy situated about the Mediterranean Sea are pursuing a mirage If Italy were given the whole of the Balkan Peninsula, all North Africa and all Asia Minor, her economic position might be no better than it is at present The political ambitions of her idealists might perhaps be satisfied, but the country would still lack the two most essential things—land for her agriculturists and raw materials for her industries Therefore her citizens would still migrate by the million to the two Americas and to those European countries where work is plentiful and wages are good, while the Mediterranean lands would make large claims upon the Italian bureaucracy and army and upon the tax-payers. They might prove a liability, not an asset. It is worth noting that in 1910 the number of Italians in North Africa was as follows, according to the Italian Emigration Commission:

In Tunis	100,000
In Algiers	45,374
In Egypt	34,926
In Eritrea	2,800
Total	183,100

In the same year there were in America 1,415,056 Italians, and in extra-Italian Europe 900,562 Italians. After all, emigrants are attracted, not by ideal motives, but by the possibility of making a good living.

Italy requires elbow-room and raw materials. She requires the latter most urgently in the difficult period after the War. Her need of raw materials and of cheap oversea transport may comparatively easily be satisfied by arrangements with the Allies, who should furnish Italy for a number of years with coal, raw materials, etc., not on competitive but on preferential terms. They should provide her, besides, with cheap capital for the development of the country and especially of electric power. However, more than this might, and I think should, be done for her. Her gallantry deserves an adequate and a full reward, and deeds are more valuable than the most graceful expression of gratitude. Hitherto territorial possessions have been the prize of successful violence. We have been told that the present War will close the age of conquest and open the era of justice. We have been told that the present War is being fought largely in order to demonstrate to Germany, and to other nations which may feel inclined to follow her example, that violence does not pay, but leads inevitably to punishment. If it is right that the vile actions of a nation should be visited with punishment at the hands of the other nations, it should logically follow that the good actions of a nation should be suitably recompensed, that virtue should no longer be its own reward. I would therefore suggest, and I would emphatically state that I am alone responsible for the suggestion, which has not been inspired or advised by anyone, that at the end of the War Italy's Allies should richly endow that country for her bravery, her gallantry and her sufferings, and should guarantee her future greatness by endowing her out of their superabundance with the territories which she needs, with a colonial empire The ideal in my mind is that after the conclusion of the War the Allied diplomats should settle with Italy and hand over to her as a free gift, not territories of little value which can easily be spared and which they might wish to get rid of, but that Italy should be given those territories which she most desires and which at the same time can be ceded to her The United States and the British Empire can richly endow Italy with territories which will furnish that country with raw materials of every kind and with agricultural lands upon which in the course of years a Greater Italy may arise

Millions of Italians live abroad and further millions may follow them. The great current of Italian emigrants could scarcely be directed to North Africa, supposing that all North Africa belonged to Italy, because the country lacks the necessary resources Besides, there is a very large native population already in possession. If Italy should receive from the Allies rich and empty territories she may be able not only to direct the stream of her future emigrants to her new possessions, but her sons domiciled in the two Americas and elsewhere may in course of time go to Italy's possessions, where they can live among men of their own race and where there are no difficulties with a large native population.

There is, unfortunately, a considerable amount of prejudice against Italian labour. British colonials and American labour leaders may object to the creation of Italian colonies in their neighbourhood A great deal of the prejudice against Italian labour is due to ignorance. Many working-men believe that the Italians are a nation of shirkers; that Italians who leave their own country are mostly waiters, organ-grinders, hairdressers, ice-cream vendors, etc., that they shun honest labour. Men who employ these arguments should be told that Italians have done the hardest and most exhaustive work everywhere, that they have constructed innumerable tunnels, railway cuttings, canals, etc., that they have been the pioneers of civilisation on all continents. It is true that the Italians frequently work for less money than do the native workers, but they do this, not from a desire to underbid native labour, but from ignorance of the language and of the customs of the land where they work Foreign contractors have found it to their advantage to arrange with Italian agents, with *padrones*, for the supply of Italian labour below current rates In most cases, not the Italian workmen, but the native contractors are to blame for the lowness of the wages paid to the Italian workers.

The grant of a colonial empire to Italy would vastly benefit the Italian people and would bind them with bonds of affection to the Allies for decades and perhaps for all time. At the same time, the British and American colonists would no doubt also be greatly benefited by close contact with the Italian people. They can learn a great deal from the Italian workers of every class. Many industries at present monopolised by them will be learned by Englishmen and Americans. Wine may replace spirits and beer as a national drink in the countries near which they have settled. After all, it must not be forgotten that the Italians were not so very long ago the foremost nation in the world, and that they temporarily declined when, in the middle of the sixteenth century, they fell under the domination, first of the Spanish and then of the Austrian Habsburgs, who oppressed and ruined the country.

Intellectually and artistically the Italians were foremost in the world until they fell under Habsburg rule. Columbus and Toscanelli, who inspired him, the Cabots, who are often believed to be Englishmen, Amerigo Vespucci and Marco Polo, were Italians, and so were Carpini, who explored Turkestan in 1245-1247, and Niccolo de' Conti, who first explored India. The Cape Verde Islands and the Senegal and Gambia were not discovered by Portuguese explorers in the time of Henry the Navigator, as is widely believed, but by an Italian, Cada Mosto, who conducted a Portuguese expedition exactly as Columbus conducted a Spanish expedition. Italy has furnished the world with some of the greatest scientists, such as Thomas of Aquino, Giordano Bruno, Leonardo da Vinci, Politian, Pico della Mirandola, Lorenzo Valla, Torricelli, etc. Modern electricity owes a great deal to the great Italians, from Volta and Galvani to Marconi. Among the greatest of the world's reformers were men like Arnaudo da Brescia, Marsiglio of Padua, Cola di Rienzo and Savonarola who inspired Luther and the great political reformers. Italian thinkers have mightily advanced philosophy, astronomy, the mathematical sciences, geography, municipal and international law, political economy, etc. Modern art is a gift of the Italians. Italy has given us Dante, Petrarca, Boccaccio, Ariosto, Tasso, Cimabue, Giotto, Michel Angelo, Leonardo da Vinci, Raphael, Donatello, Correggio, Botticelli, Bramante and innumerable other masters. She is the mother of modern music. The scientists, thinkers and artists of modern Italy are worthy sons of their great ancestors. Prosperity, Science and Art are apt to go hand in hand. During the Cinquecento the Italians were foremost not only in all the sciences and all the arts, but in all the industries and in commerce as well. The great Italian towns were the wealthiest towns in the world. The creation of a Greater Italy, as outlined in these pages, may bring about another awakening of Italian genius, another Cinquecento. If the ideas expressed in these pages should recommend themselves to the friends of Italy in England, France and the United States, the societies friendly to Italy domiciled in the three countries should take up the programme sketched in this chapter and urge its realisation upon the various Governments.

CHAPTER XIII

CAN GERMANY PAY AN INDEMNITY?—HER NATURAL WEALTH*

BEFORE the outbreak of the present War most Englishmen looked at German economic conditions through strongly coloured party-political spectacles Tariff Reformers loudly asserted that Germany was enormously wealthy owing to her tariff, while Free Traders equally stoutly maintained that Germany was wretchedly poor. In the summer of 1914, at a moment when the pre-war tension was greatest, a very distinguished Free Trader assured me that peace would certainly be maintained, that Germany's financial position was very unfavourable, that she suffered from chronic deficits, that her last loan had been a failure, that she could not afford to go to war. When I expressed doubt at the correctness of his views, he replied with indignation· "Of course, you are a Tariff Reformer!"

Four years of war, during which Germany has financed her impecunious allies and has spent untold millions among the neutral States, have proved even to the blindest that Germany, who was lamentably poor a few decades ago, who, in 1870, after her first victories over France, raised with difficulty a loan of a few million pounds at 10 per cent., only half of which was subscribed for, has suddenly become exceedingly wealthy. British party strife and party-political prejudice have shrunk into the background. Hence the moment seems favourable for making a brief and impartial inquiry into the nature and causes of the wealth of Germany. Such an investigation seems particularly timely, because it is frequently, but rather rashly, asserted, and very widely believed, that Germany will be ruined if she should lose the War, that no indemnity, and certainly no adequate indemnity, can be expected from her even if the Allies should gain a complete victory.

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* From *The Fortnightly Review*, June, 1918.

In a democracy such as Great Britain people are unfortunately apt to subordinate facts to their party-political or their personal views and aspirations While convinced Tariff Reformers ascribe Germany's vast prosperity chiefly, if not exclusively, to Protection, enthusiastic Free Traders, who at last have reluctantly begun to admit Germany's wealth, ascribe it to the better education of the German people and to their industry and frugality Opponents of amateur government believe that Germany's economic progress is due to government by experts. Socialists assert that State Socialism has enriched the country, while many advocates of inland transport reform see in Germany's excellent railways and canals the principal factor of her wonderful industrial development

As a rule, great economic phenomena are due, not to a single cause, but to a number of causes. Expert government, an able, well-organised and conscientious administration, good railways and canals, a fiscal policy designed, not for vote-catching purposes, but for purely economic ends, and a good education, have all powerfully contributed in making Germany efficient and prosperous. However, wealth depends not merely on the exertions of men. Wealth is created by the exploitation of the resources of Nature by men. An industrious, ambitious, well-trained, well-governed and well-directed nation cannot hope to accumulate great wealth unless it possesses great natural resources. Greenland would remain poor even if all the Eskimos were Carnegies and Edisons

It is frequently asserted by those who are insufficiently acquainted with German affairs, and by those who wish to ascribe Germany's phenomenal economic success to some single cause, that Germany is naturally an exceedingly poor country; that she owes her vast wealth almost exclusively to the exertions of her people and to the ability of her rulers In reality Germany is endowed with very great and exceedingly valuable natural resources Among these the following are particularly important Germany possesses—

(1) By far the greatest mineral resources in Europe, especially coal, potash and iron ore;

(2) A geographical configuration most favourable to the development of agriculture and industry;

(3) An unrivalled system of natural waterways which opens up the country in all directions;

(4) An invaluable strategical position in the centre of the Continent, which is as helpful for commercial conquest as for military aggression.

As the study of Germany's natural resources has hitherto been much neglected by those who have dealt with German affairs, and especially by the numerous writers who have ascribed Germany's success either to the qualities of the people and of their rulers or to her economic policy in the wider or the narrower sense, I intend to deal in these pages with Germany's natural resources in the first place.

The great characteristic of modern industrial production is that it is carried on by labour-saving machinery, whereby the productivity of a single worker can be increased a hundredfold and a thousandfold. A skilled smith can as easily use a hundred-ton steam-hammer as a light sledge-hammer. A skilled weaver can as easily attend to twenty automatic power-looms which work with incredible rapidity as to a single sluggish hand-loom. Modern industry is based on the most lavish use of power for driving machinery. Machines are driven either by steam or by electricity. Electric power can be generated either from coal or from waterfalls. As there are comparatively few waterfalls in Germany, except in the extreme South, coal furnishes, and will continue to furnish, Germany, and most other European States as well, with the prime motive force, which, of course, may be converted into electric power. Not only the bulk of the industrial machinery, but the bulk of the machinery used in mines and on railways, steamships, etc., depends upon coal or upon coal-generated electricity. It is therefore clear that coal is the dominating and the determining factor in modern industry and in modern commerce and transport. All three require gigantic quantities of coal.

Germany has by far the greatest store of coal in Europe. Her relative position as an owner of coal may be seen from the following features, which are taken from the valuable Report, "Coal Resources of the World," which was placed before the International Geological Congress at Ottawa in 1913.

COAL RESOURCES OF EUROPE.

	Tons
Germany	423,356,000,000
Great Britain and Ireland .	189,535,000,000
Russia	60,106,000,000
Austria-Hungary	59,269,000,000
France	17,583,000,000
Belgium	11,000,000,000
Spain	8,768,000,000
Spitzbergen	8,750,000,000
Holland	4,402,000,000
Balkan States	996,000,000
Italy .. .	243,000,000
Sweden, Denmark and Portugal.	184,000,000
Total	784,192,000,000

It will be noticed that, within her frontiers of 1914, Germany possesses more than one-half of the coal of all Europe; that she has more than twice as much coal as the United Kingdom, more than seven times as much coal as European Russia, more than twenty-four times as much coal as France; that she has more than twice as much coal as all the other States of the European Continent combined Germany is supreme in Europe in the most important of all minerals It need scarcely be explained that supremacy in coal, in power, is a tremendous advantage to a modern industrial and commercial State.

Germany's coal is an asset of truly gigantic value. At the very low average price of 10s per ton at the pit's mouth—a price which is bound to increase greatly in course of time—her store of coal alone represents a capital of £211,678,000,000, a sum which is thirty times as large as England's estimated War expenditure up to March 31st, 1919, and about fourteen times as large as the National Wealth of the United Kingdom was supposed to be in 1913 In view of her colossal wealth in coal it is, of course, ridiculous to say, as many people do, that Germany is naturally a very poor country, and that she cannot pay a heavy indemnity in case she should be defeated.

The value of coal depends upon its quality and upon the position and the greater or lesser exploitability of the coalfields Let us, therefore, study Germany's wealth in coal a little more closely.

Germany is particularly rich in bituminous coal, which yields an abundance of by-products such as gas, tar, pitch, oil, ammonia, explosives, dyes, drugs, etc., which in the aggregate are far more valuable than the coal from which they are obtained. Germany's coal-measures are on the whole easily exploitable. Her most important coalfields are three· The Rhenish-Westphalian coalfield, situated on the River Ruhr about the town of Dortmund; the great Silesian coalfield, in the south-eastern corner of Silesia, close to the Austrian and Russian borders; the Saar coalfield, about the town of Saarbrücken, close to the frontier of Lorraine An authoritative description of the principal German coalfields and a reliable estimate of Germany's wealth in coal were furnished to the International Geological Congress at Ottawa by leading German experts and were reprinted in the Report mentioned I have extracted from that document the most important passages The estimate of Germany's coal resources was drawn up with the greatest caution, and it erred, apparently very considerably, on the side of moderation, as coal estimates frequently do The Report of the German experts stated

> According to general expert opinion, coal-mining is for decades not practicable in Germany at a greater depth than 1,500 metres The figures given in the following relate only to *the quantities of coal which are actually exploitable under present conditions* Therefore, layers which measure less than 30 centimetres (12 inches) have been excluded It should also be pointed out that *the store of lignite possessed by Germany is considerably larger* than indicated by the figures given. . .
>
> The relative importance of the Westphalian coalfield increases constantly the lower one goes Down to the thousand-metre depth it contains only about one-third (30 to 32 per cent) of Germany's coal Between 1,500 metres and 2,000 metres it contains more than two-thirds, exactly 70 per cent , of Germany's coal Altogether, down to a depth of 2,000 metres it contains a little more than one-half (from 50 to 52 per cent) of Germany's coal
>
> While the relative importance of the Westphalian coalfield increases at depth, that of the Silesian coalfield diminishes the lower one goes Down to 1,000 metres it contains about 60 per cent of Germany's coal, but

down to 2,000 metres it contains only from 39·5 per cent. to 40 per cent of the nation's fuel. . .

The coalfield third in importance is that on the River Saar Down to the depth of 1,000 metres it contains 7·87 per cent , and down to 2,000 metres 5·7 per cent., of Germany's coal

The Report sums up Germany's coal resources as follows, according to the depth at which the mineral is found.

Down to 1,200 metres	194,537,000,000 tons	— 47·45 per cent.
From 1,200 to 1,500 metres	77,447,000,000 tons	— 18·89 ,,
Total	271,984,000,000 tons	— 66·34 ,,
From 1,500 to 2,000 metres	137,982,000,000 tons	33·66 ,,
Grand Total . .	409,966,000 000 tons	100·00 ,,
Lignite	13,390,000,000 tons	
Total coal and lignite . .	423,356,000,000 tons	

The Rhenish-Westphalian coalfield is particularly interesting for two reasons Firstly, because it is the largest, the most intensively exploited, and therefore the most important, German coalfield, secondly, because it is situated within easy reach of France and Belgium The relative importance of the Rhenish-Westphalian coalfield as an active coal producer may be seen from the following figures

GERMAN COAL PRODUCTION IN 1910.

	Tons.
In the Rhenish-Westphalian district	89,318,949
In the South Silesian district . .	34,229,360
In the Saar district	13,638,881
In all other districts	13,885,926
Total	151,073,116

It will be noticed that in 1910 the Rhenish-Westphalian coalfield furnished 60 per cent of Germany's coal output.

In addition, it provided 90 per cent. of Germany's coke (which is largely used for iron-smelting), 75 per cent. of Germany's coal-tar, 75 per cent of Germany's benzol, and 85 per cent. of Germany's sulphate of ammonia, which is exceedingly valuable as a fertiliser and for chemical purposes.

The Rhenish-Westphalian coalfield has forty-six coal seams more than 12 inches thick and which in the aggregate are 57 metres thick Altogether the field contains ninety-two seams, which in the aggregate are 79·6 metres thick.

The Rhenish-Westphalian coalfield is situated in and about the valley of the River Ruhr and lies at a right angle to the Rhine The coal slopes in a north-westerly direction to a considerable distance Coal occurs not only up to the German-Dutch frontier, but even beyond it, and is being mined in Holland The coalfield may be divided into three zones, a zone in the south, where pits have been sunk into the coal: a zone farther north, which has been explored by means of bore-holes, and a third zone still farther north, up to the Dutch frontier, which has not yet been fully explored.

The fact that the Report of the German experts probably seriously understates the quantity of coal available may be seen from the following statement of theirs

> The result of the calculations of coal available has been made on a conservative basis For loss of coal in mining 27 per cent. of the coal actually available has been deducted.

The Report continues

> We have in the Rhenish-Westphalian pit zone, which extends to 1,532 square kilometres, down to a depth of 1,500 metres, 31,900,000,000 tons of coal, and down to 2,000 metres, 37,500,000,000 tons. In the bore-hole

zone of 1,728 square kilometres we have 26,900,000,000 tons of coal to a depth of 1,500 metres, and 44,700,000,000 tons to a depth of 2,000 metres. Within the unopened zone of 2,910 square kilometres there are 17,600,000,000 tons down to 1,500 metres, and 61,600,000,000 tons down to 2,000 metres.

At the present rate of exploitation, which comes to be 100,000,000 tons per annum, the store of coal absolutely worth extracting situated within the pit zone would suffice for 319 years down to the depth of 1,500 metres, and for 375 years down to 2,000 metres. The coal absolutely worth extracting within the bore-hole zone would suffice for an additional 269 years down to 1,500 metres, and for 447 years down to 2,000 metres. The workable coal within the unopened zone would suffice for a further 176 years down to 1,500 metres, and for 616 years down to 2,000 metres. In all three zones combined, which together extend to 6,170 square kilometres, there are, down to the depth of 1,500 metres, 76,400,000,000 tons of coal absolutely worth extracting, which, at the present rate of exploitation, would suffice for 764 years, while the coal absolutely worth obtaining down to 2,000 metres would amount to 143,800,000,000 tons, and would suffice for 1,438 years.

The estimate given leaves out of account seams measuring less than 12 inches across. If these were included, the coal would suffice for 2,136 years at the present rate of exploitation. According to the Report quoted, the quantity of coal contained in the Rhenish-Westphalian field is classified as follows:

ACTUAL RESERVES.

	Seams more than 12 Inches thick. *Tons.*	*All Seams.* *Tons.*
Up to 1,000 metres	22,708,000,000	32,336,000,000
1,000–1,200 metres	5,306,000,000	7,145,000,000
1,200–1,500 metres	5,808,000,000	8,063,000,000
1,500–2,000 metres	5,628,000,000	8,800,000,000
Total	39,450,000,000	56,344,000,000

Probable Reserves

	Seams more than 12 Inches thick.	*All Seams.*
	Tons	*Tons.*
Up to 1,000 metres	7,708,000,000	12,756,000,000
1,000–1,200 metres	8,745,000,000	13,322,000,000
1,200–1,500 metres	10,455,000,000	16,943,000,000
1,500–2,000 metres	17,788,000,000	25,701,000,000
Total	44,696,000,000	68,722,000,000

Possible Reserves

	Tons	*Tons.*
1,200–1,500 metres .	17,600,000,000	26,500,000,000
1,500–2,000 metres . ..	44,000,000,000	62,000,000,000
Total .. .	61,600,000,000	88,500,000,000
Grand Total	145,746,000,000	213,566,000,000

I would draw attention to the fact that the Rhenish-Westphalian coalfield alone contains considerably more coal than the whole of the United Kingdom, and that the coal in that district represents a value of £106,783,000,000 at the low average price of 10s per ton at the pit's mouth. That sum is seven times as large as the so-called national wealth of the United Kingdom in 1913.

We live in the age of iron While coal is the principal source of power industrially applied, iron is the most important ingredient of industrial manufacture and of transport. Germany is exceedingly rich, not only in coal, but in iron ore as well The wealth of a country in iron ore depends, of course, upon the quantity of metallic iron which is contained in the ore Germany's relative position as an owner of iron ore, or rather of metallic iron, may be seen from the following figures, which are taken from the Report,* "Iron-Ore Resources of the World," which was placed before the International Geological Congress at Stockholm in 1910:

RESOURCES OF METALLIC IRON CONTAINED IN IRON ORE.

Iron Reserves of Europe.

	Actual Resources Tons	*Potential Reserves.* Tons.
Germany . .	1,270,000,000	Considerable
France . .	1,140,000,000	Considerable
Sweden . .	740,000,000	105,000,000
United Kingdom .	455,000,000	10,830,000,000
Russia	387,200,000	424,700,000
Spain	349,000,000	Considerable
Norway	124,000,000	525,000,000
Austria .	90,400,000	97,000,000
Luxemburg	90,000,000	?
Greece . . .	45,000,000	?
Belgium . .	25,000,000	?
Hungary . .	13,100,000	34,100,000
Italy	3,300,000	1,000,000
Finland	?	16,000,000
Bosnia and Herzegovina .	?	11,300,000
Bulgaria . .	?	700,000
Switzerland . . .	800,000	800,000
Portugal	?	39,000,000
Total . . .	4,732,800,000	12,084,600,000

It will be noticed that, as far as actual reserves are concerned—it would be rash to treat potential reserves as if they were actually available—Germany is the largest owner of iron ore in Europe, that she possesses within her frontiers of 1914 three times as much iron as the United Kingdom.

Germany has a number of iron-ore fields. These contain, according to information placed by eminent German experts before the Stockholm Congress, the following quantities of ore:

	Available in the First Place	*Available in the Second Place.*	*Probable Reserves.*
	Tons.	*Tons.*	
Lahn and Dill district	166,000,000	92,250,000	Considerable
Kellerwald-Sauerland	4,000,000	—	Moderate
Siegerland	100,300,000	15,400,000	Moderate
Other Rhenish mountains	8,100,000	11,500,000	Moderate
Bentheim-Ottenstein	—	15,000,000	Considerable
Teutoburger Wald	20,500,000	23,500,000	Moderate
Ilsede and Salzgitter	248,000,000	30,000,000	Very Considerable
Harz Mountains	20,500,000	24,500,000	Moderate
Thuringia	51,900,000	52,300,000	Considerable
Minette of North-West Germany	20,001,000	25,000,000	Considerable
Lower Hesse	600,000	1,000,000	Moderate
Spessart Mountains	3,500,000	—	Moderate
Silesia	600,000	17,250,000	Moderate
North and Middle Germany	10,000,000	10,000,000	Moderate
Wurttemberg	10,000,000	100,000,000	Very Considerable
Baden	—	—	Considerable
Bavaria	31,000,000	150,000,000	Very Considerable
Hesse	15,000,000	—	Considerable
Lorraine-Luxemburg	2,130,000,000	500,000,000	Very Considerable
Total	2,840,000,000	1,067,700,000	Very Considerable

As Luxemburg forms part of the German Customs Union, the Luxemburg ores have been included in the list. The Grand Duchy has about 300,000,000 tons of available iron ore.

The figures given show that in Lorraine-Luxemburg, close to the French frontier, are found three-fourths of those German iron ores which are described as "available in the first place," and one-half of those ores which are described as "available in the second place." The eighteen other iron-ore fields enumerated possess individually only small quantities of ore, and I would particularly point out that whereas the Lorraine-Luxemburg district possesses the bulk of the ore available in the first place, the eighteen other districts excel in ores which are available only in the second place, which, in other words, are commercially of inferior value

Germany possesses in round figures 4,000,000,000 tons of iron ore actually in sight In addition to that vast quantity she has, according to the expert information supplied in the table, very considerable reserves, for which, however, accurate estimates cannot as yet be given If we assume that Germany's iron ore is on an average worth 5s per ton—which seems a reasonable figure, for its price is likely to increase— her store of iron ore actually in sight is worth about £1,000,000,000. It is therefore a considerable asset, although its value is small if compared with the truly gigantic sum represented by the value of Germany's coal At the rate of 5s per ton, the Lorraine-Luxemburg iron ore alone would be worth £750,000,000.

As the Lorraine-Luxemburg ores are more easily accessible and more valuable than the other German ores, it is only natural that the Lorraine orefields have become the principal source of Germany's domestic ore-supply. In 1910 Germany's gigantic iron industries used 38,526,454 tons of ore, which came from the following quarters:

IRON ORE USED IN GERMANY IN 1910.

Domestic Ore.

From Alsace-Lorraine ..	16,652,144 tons	
,, Luxemburg	6,263,391 ..	
		22,915,535 tons
,, All other districts ..		5,794,119 ,,
		28,709,654 ..

Imported Ore.

From Sweden	3,249,000 tons	
,, Spain	2,861,200 ,,	
,, France and Belgium	2,100,400 ,,	
,, All other countries ..	1,606,200 ,,	
		9,816,800 tons
Grand Total ..		38,526,454 ,,

Of the iron ore used in Germany in 1910, about 75 per cent came from Germany and 25 per cent was imported from abroad; while of Germany's domestic iron ore, about 80 per cent came from the Lorraine-Luxemburg district and only about 20 per cent from all the other German districts combined. In other words, the great German iron industry, the most powerful industry of the country, is dependent for its prosperity on imported iron ore which is particularly rich in metallic iron, and on iron ore drawn from the Lorraine district, which is situated on the French frontier. It follows that the great German iron industry and the numerous industries dependent on it would be ruined if Germany should be deprived of the Lorraine-Luxemburg iron and the iron imported from abroad. That is a fact which the Allied diplomats and peoples will probably not overlook.

The Lorraine-Luxemburg ores have this peculiarity, that they are very rich in phosphorus. As phosphorus makes iron brittle, it has to be extracted from the ore. This is done by the Gilchrist-Thomas method in converters lined and partly filled with lime. The phosphorus in the ore unites with the lime and forms a scum, which, on rising to the top, is drawn off. It is allowed to cool and is then ground into a fine powder, which is called basic slag, and which is a manure of the very greatest value. Germany is not only self-supporting in this important fertiliser, but exports huge quantities of it, especially to Austria-Hungary, Russia and Italy.

Germany is exceedingly rich in mineral salts of every kind, and she has an absolute world monopoly in the particularly precious potash salts The extent of her salt deposits is not yet exactly known. They are so vast that it is impossible to measure them and to calculate their contents From year to year the known area of her subterranean deposits of salt and potash has been increasing At first it was believed that these salts occurred only about Stassfurt and Halle, in the centre of Germany However, potash has been found in vast quantities also in Thuringia, in the Grand Duchy of Saxony, in Hesse, in Hanover, in Mecklenburg, near Bremen and Hamburg, and in Alsace north of Mulhouse It is believed by many that almost the whole of the North German plain and part of South Germany rest on salt deposits so gigantic that they almost defy measurement Boreholes have been sunk through 6,000 feet of solid but soluble salts of all kinds without coming to the end, and nobody knows how much deeper one has to go to find their foundation

Among the various kinds of mineral salts, soluble potash is at present the most valuable I say "at present" because science may discover still more precious salts in that gigantic store Soluble potash is of importance in chemistry and in many industries. Besides, it is one of the most valuable and the most necessary fertilisers known. The most important minerals required in the nurture of plants are three in number: nitrogen, phosphorus and potassium Nitrogen is frequently supplied in the form of farmyard manure, which is rich in ammonia; phosphorus is given to plants in the shape of superphosphates, such as basic slag, in which Germany is particularly rich; and potassium is furnished in the shape of potash manure. Potash is extremely valuable for producing heavy crops of grain, roots, potatoes, tobacco, and grapes. All these flourish particularly in soil naturally rich in potash, such as that of the black earth district of Russia, or artificially enriched by potash. The *Encyclopædia Britannica* says on the subject in the article "Manures".

> Potash appears to be bound up in a special way with the process of assimilation, for it has been clearly shown that whenever potash is deficient the formation of the carbohydrates, such as sugar, starch and cellulose, does not go on properly Hellriegel and Wilfarth showed by experiment the dependence of starch formation on an adequate supply of potash Cereal grains remained small and undeveloped when potash was withheld, because the formation of starch did not go on The same effect has been strikingly shown in the Rothamsted experiments with mangels, a plot receiving potash salts as manure giving a crop of roots nearly two and a half times as heavy as that grown on a plot which had received no potash.

Germany's great agricultural prosperity and the progressive yield of her crops are largely due to her wealth in potash and in phosphoric iron ore, which furnish her with the most precious fertilisers. With regard to Germany's potash the *Encyclopædia Britannica* states:

> Potash manures, with few exceptions, are natural products from the potash-mines of Stassfurt (Prussia). Until the discovery of these deposits in 1861 the use of potash as a fertilising constituent was very limited, being confined practically to the employment of wood ashes. At the present time a small quantity of potash salt—principally carbonate of potash—is obtained from sugar refineries and other manufacturing processes, but the great bulk of the potash supplied comes from the German mines. In these the different natural salts occur in different layers and in conjunction with layers of rock-salt, carbonate of lime and other minerals, from which they have to be separated. . . .
>
> Potash is much esteemed in agriculture, more especially

on light land (which is frequently deficient in it) and on peaty soils, and for use with root crops and potatoes in particular. For fruit and vegetable growing and for flowers potash manures are in constant request.

Potash is largely used in the industries, especially for making glass, glazing earthenware, iron-smelting and soap production, and for making explosives, soda, coal-tar dyes, chloride of potash, sulphate of potash, permanganate of potash, hydrochloric acid, oxalic acid, bromine, saltpetre, Glauber's salt, cyanide of potassium, chloride of lime, etc. The production of potash in Germany has increased as follows —

Year.	*Tons.*	*Year.*	*Tons.*
1861	2,293	1891	1,370,013
1866	143,000	1896	1,782,673
1871	300,747	1901	3,484,865
1876	586,196	1906	5,129,439
1881	943,963	1911	9,606,900
1886	1,041,545		

In 1913 Germany's exports of salts, and especially of potash, in all forms exceeded £10,000,000. The most important buyers of Germany's potash were the United States, Holland, England and Sweden. The United States employ vast quantities of German potash in their agriculture, especially for the cultivation of cotton and tobacco, and also for manuring vegetables, fruit-trees and meadow grass.

The quantity of salts and of potash possessed by Germany is unmeasurable and unestimable. In Germany it is frequently stated that the country can, at the present rate of consumption, supply the world with potash for at least five thousand years. Owing to over-production, the price of potash has been kept low, at about 10s. per ton. If we estimate that Germany possesses only 50,000,000,000 tons of easily accessible potash, it would at the low price of 10s. per ton, represent a value of

£25,000,000,000, a sum which is twice as large as the so-called national wealth of France. However, science may, and probably will, before long discover further use for the gigantic quantities of salts of which Germany has apparently a monopoly. Hence the value of Germany's store of salts is as unmeasurable as is its quantity, and its value may before long very greatly exceed the figure mentioned

Providence has been very kind to Germany It has endowed the Germans not only with vast and most valuable mineral resources, which have enabled them to create great and exceedingly prosperous manufacturing industries, but it has given them at the same time extremely favourable geographical conditions The configuration of Germany is eminently favourable to the development of agriculture and of all the industries. Agriculture flourishes most on large, well-watered plains, while the manufacturing industries naturally arise in hilly districts rich in minerals and water-power, where men cannot make a living by agriculture alone The prosperity of agriculture and of the manufacturing industries depends, of course, very largely on easy accessibility, on good communications, on cheap transport. The vast North German plain offers ideal conditions for agriculture and for the construction of roads and of railroads Besides, Germany has an absolutely unique system of gently flowing, navigable rivers, which can easily be regulated and which pursue, at almost equal distance, a parallel course towards the North Sea and the Baltic. These rivers open up, not only all Germany, but also the countries beyond, to Germany's great advantage. The Rhine is the natural outlet of Switzerland, the Elbe that of Bohemia and of Northern Austria, and the Vistula that of Poland. Hamburg is the most important Austrian harbour and Danzig the most important Polish harbour, while the Rhine is indispensable to Switzerland. These parallel-flowing rivers can, of course, be easily and cheaply connected, and have been connected, by canals running at a right angle to them through the plain. These open up Germany in the lateral direction Lastly, the Rhine can easily be connected by a deep canal with the Danube No other country possesses similarly favourable conditions for the development of inland transport by land, and especially by water

A central position, the control of the inner lines, as strategists call it, is as valuable for commerce as it is for warfare Being placed in the centre of the European Continent, Germany became centuries ago the meeting-place, the natural exchange and mart, of the Continental nations From the earliest times the trade between Asia, Africa and Europe flowed along the Mediterranean, and went on either through Northern Italy, across the Alps, and then along the Rhine, or it went by way of Marseilles up the Rhone and then down the Rhine towards Bruges, Amsterdam, Rotterdam, Antwerp, England, and *vice versa*. The trade between the European East and West was carried on by the Danube on the one hand and by the Rhine, Elbe and Vistula on the other hand Nuremberg, Augsburg, Strassburg, Ulm, Cologne, Prague, Vienna, Hamburg, Danzig, etc, became wealthy because they were the natural centres, emporia and outlets on the great Transcontinental trade routes which Nature had provided for the use of man.

A central position on a populous continent, such as that occupied by Germany, is exceedingly favourable, not only for the development of international commerce, but also for the rise of prosperous manufacturing industries. Nuremberg, Augsburg, Strassburg, Ulm, etc, became great manufacturing centres largely because of their central position. Their geographical position resembles that of Chicago, St. Louis, Winnipeg. Manufacturers naturally settle in localities which are particularly favourable for developing a trade in all directions. Geographically Germany is far more favourably situated for the industrial conquest of France, Austria-Hungary, Italy, Russia and her other neighbours than is England, through greater propinquity. France is cut off from Russia and Austria-Hungary by the bulk of Germany. Russia is cut off from the countries of the West by German territory.

The details given make it clear that Germany owes her vast wealth very largely to the possession of great and exceedingly valuable natural resources Her wealth in the three minerals with which she is particularly abundantly supplied may be summarised as follows. Germany possesses—

423,356,000,000	tons of coal at 10s. per ton	= £211,678,000,000
4,000,000,000	,, of iron ore at 5s. per ton	1,000,000,000
50,000,000,000	,, of potash at 10s. per ton	25,000,000,000
	Total	£237,678,000,000

The figures given indicate that Germany's natural riches are far greater than is believed by those who tell us that Germany's national wealth comes only to £15,000,000,000, that the country will be ruined if defeated, and that she cannot pay a War indemnity, and certainly not an adequate one, even if the Allies should gain a complete victory.

CHAPTER XIV

CAN GERMANY PAY AN INDEMNITY?—HER PRODUCTION AND TRADE*

In the previous chapter I have shown that Germany owes her vast wealth very largely to the possession of very great and exceedingly valuable natural resources; that among the nations of Europe she is by far the richest in coal, iron ore and potash; that she has a geographical configuration most favourable to the development of agriculture and industry; that she possesses an unrivalled system of natural waterways which open up the country in all directions; that she occupies an invaluable strategical position in the centre of the Continent of Europe, a position which is as helpful for commercial conquest as for military aggression; that her coal, iron ore and potash alone are, at a very moderate valuation, worth £237,678,000,000, a sum which is about fifteen times as large as what is usually called the national wealth of the United Kingdom. Wealth is created by the exploitation of the resources of Nature by man. Let us now consider how the Germans have converted their natural resources into wealth and power. Such an investigation will yield some extremely valuable lessons to the practical statesman. Besides, the facts and figures which I shall furnish may help in answering the question whether Germany will be able or not be able to pay an adequate indemnity if the Allies should gain a complete victory.

During the last few decades, Germany, which not so very long ago was a poor and mainly agricultural country, has become an exceedingly wealthy industrial and commercial State, in which agriculture occupies a secondary place as a creator of wealth Before the War Germany's wealth was probably as great as that of the United Kingdom, and the combined production of all her industries was very likely greater than that of all the British industries. While the United Kingdom was very superior to Germany in cotton manufacturing, shipbuilding and some other industries, Germany was very superior to Great Britain in the iron and steel industries, the chemical industries, the electrical industries, the glass industry and a number of others

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* From *The Fortnightly Review*, July, 1918.

Formerly Great Britain pursued in matters economic a national policy which promoted production all round. Successive Governments fostered alike agriculture, the manufacturing industries and international trade In 1846 England abandoned her national economic policy for a sectional one. She adopted the policy of *laissez faire*, of one-sided free imports, miscalled Free Trade, under the assumption that that policy was particularly favourable to the development of the manufacturing industries and of international trade, and allowed her agriculture to decline and to decay English politicians and economists of the *laissez faire* school met the bitter complaints of agriculturists and others with the assertion that industry was more profitable than agriculture; that in a densely populated industrial and commercial European State there was no room for a prosperous agriculture.

Bismarck introduced in 1879 a policy of Protection which favoured simultaneously and equally agriculture and the manufacturing industries of Germany. It is generally known that the German manufacturing industries have mightily expanded during the last few decades; but it is not very widely known that the rural industries also have rapidly advanced. The progress of a nation's rural industries can best be measured by their productiveness Germany's agricultural production has increased as follows since 1880.

THE GERMAN HARVEST.

Year	Rye.	Wheat.	Oats.
	Tons.	Tons.	Tons.
1880	4,952,525	2,345,278	4,228,128
1890 .. .	5,868,078	2,830,921	4,913,544
1900	8,550,659	3,841,165	7,091,930
1910	10,511,160	3,861,479	7,900,376
1913	12,222,394	4,655,956	9,713,965

Year.	Potatoes.	Sugar.	Hay.
	Tons	Tons	Tons.
1880 ..	19,466,242	415,000	19,563,388
1890	23,320,983	1,261,000	18,859,888
1900	40,585,317	1,795,000	23,116,276
1910	43,468,395	1,947,580	28,250,115
1913	54,121,146	2,632,000	29,184,994

Between 1880 and 1913—1913 was a particularly bountiful harvest year—the production of the three principal German grain crops, rye, wheat and oats, considerably more than doubled, the production of potatoes nearly trebled and that of sugar grew sixfold while the hay harvest increased by about 50 per cent. Before the War Germany produced about one-third of the world's potatoes. She was by far the largest potato-grower in the world. She raised about eight times as much as the whole of the United Kingdom. Only from one-third to one-fourth of her potatoes was used for human food.

The bulk of her gigantic crop was employed either for feeding enormous numbers of cattle and pigs or for making spirit and starch and for other industrial purposes. It will be noticed that during the period under consideration Germany's agricultural production increased rapidly and continuously. The rapid and continuous increase in the produce of Germany's harvest was accompanied by a similar increase in Germany's meat production. Her live stock increased as follows during the years when animal censuses were taken:

LIVE STOCK OF GERMANY.

Year.	*Horses.*	*Cattle.*	*Sheep.*	*Pigs.*
1873 ..	3.352.231	15.776.702	24,999.406	7,124.088
1883	3.522.525	15.786.764	19.189.715	9,206.195
1892 ..	3,836.256	13.555.694	13 589.612	12,174.288
1897 ..	4.038,495	18.490.772	10,866,772	14.274.557
1900 ..	4,184.099	19 001.106	9,672,143	16.758,436
1907 ..	4,337,263	20.589,856	7,681,072	22,080,008
1913 ..	4.523,059*	20,994.344	11 320.460	25,659,140

Between 1880 and 1913, when the British crops decreased to an alarming extent, the German crops fully doubled. Between 1883 and 1913, while British live stock increased only by about 10 per cent, German meat production fully doubled, for the number of cattle increased by one-third, while the number of pigs nearly trebled. Moreover, the increase in meat production was greater than appears from these figures, because breeds were greatly improved, so that the weight of the average animal was much greater in 1913 than it had been thirty years before. As sheep-rearing is impossible if intensive agriculture is pursued, sheep, which yield comparatively little meat, were replaced by the more prolific and more valuable pigs

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* The figure relating to horses is for 1912, as horses were not enumerated in 1913.

The enormous increase in Germany's crops and Germany's live stock was caused, not by extending the agricultural area of the country, but by more intensive and more scientific cultivation Since 1880 the yield per hectare—a hectare is roughly equal to 2½ acres—increased as follows according to the official statistics

Average Yield per Hectare of Ground in Kilogrammes.

Year	*Rye*	*Wheat*	*Oats*	*Barley.*	*Potatoes.*
1880 .	840	1,290	1 130	1,320	7.100
1885	1 000	1,360	1.150	1,300	9.600
1890 .	1,010	1,440	1,260	1,370	8 000
1895 .	1,120	1.450	1,300	1,430	10,440
1900	1 440	1,870	1,720	1,800	12,600
1905	1,560	1,920	1,570	1,790	14,600
1910 .	1 700	1 990	1,840	1,850	13,200
1913	1,910	2 360	2,190	2,220	15,860

Between 1880 and 1913—the latter year yielded exceptionally heavy crops—the produce per hectare, or per acre, practically doubled with regard to all the staple crops In some cases the increase was a little less than double, in others it more than doubled The increase in yield per hectare was continuous. That is surely a most remarkable record, and it was achieved obviously by improved cultivation, by the application of science to agriculture. The vast increase in the production of sugar also was largely due to improved methods of cultivation, whereby the percentage of sugar contained in the beets was considerably increased. The official figures make the following showing:

Year.	*Production of Sugar in Germany*	*Percentage of Raw Sugar Extracted from Beet.*
	Tons.	
1875–6	358,048	8·60
1880–1	573,030	9·04
1885–6	838,105	11·85
1890–1	1,336,221	12·54
1895–6	1,637,057	14·02
1900–1	1,979,000	14·93
1905–6	2,400,771	15·27
1910–11	2,589,869	16·45
1912–13	2,706,327	16·30

Although Germany's agricultural production doubled during the last few decades, her agricultural population either remained stationary or actually decreased. Whether it did the one or the other is not quite clear, because at the last Industrial Census, that of 1907, a different basis was adopted in enumerating the agricultural workers. Measured by the number of agricultural workers given in the only three Industrial Censuses which were taken in Germany, there would seem to be a considerable increase in agricultural labour employed. On the other hand, measured by the figures relating to persons employed, including their dependents, the number of agricultural workers would seem to have steadily and very considerably declined. The official figures which allow of these two irreconcilable interpretations are as follows:

Year.	*Persons Employed in Agriculture and Forestry.*	*Persons Employed in Agriculture and Forestry, including Dependents.*
1882	8,236,500	19,225,500
1895	8,292,700	18,501,300
1907 .. .. enum.	9,883,300	17,682,200

The official figures given make it doubtful whether the number of agricultural workers has increased or declined. They allow of either interpretation. Hence it will perhaps be best to assume that the number of agricultural workers has remained approximately stationary. It would follow that production per agricultural worker has doubled during the last few decades, and this doubling of agricultural production was obviously caused by the increased employment of powerful labour-saving machinery. The three Industrial Censuses of Germany indicate that machinery used in agriculture increased as follows during those years for which alone official statistics are available·

Year	*Steam Ploughs.*	*Seed-Casting Machines.*	*Mowing Machines*	*Steam-Threshing Machines*	*Other Threshing Machines*
1882 ..	836	63,842	19,634	75,690	298,367
1895 ..	1,696	169,465	35,084	259,364	596,869
1907 ..	2,995	290,039	331,325	438,837	947,003

During the twenty-five years from 1882 to 1907 the machinery employed in German agriculture has increased enormously The number of steam-ploughs has increased three and a half-fold, that of seed-casters nearly fivefold, that of steam-threshing machines nearly sevenfold, and that of mowing machines nearly seventeenfold. Of course, the doubling of production per acre could not be achieved by using labour-saving machinery alone. The doubling of production could be brought about only by increasing the fertility of the soil. The Germans have applied science and organisation to their rural industries. Their chemists have analysed the soils, their biologists have studied the most scientific methods of feeding animals, etc., and the authorities have spread the information supplied by the scientists among the agriculturists, and have organised the rural industries so as to eliminate all factors regarding their expansion. Of course, the productivity of the soil can be greatly increased only by the lavish use of the best manures, whereby a naturally poor soil can be converted into an extremely rich one. As I have explained in the preceding chapter, the two most important fertilisers, apart from nitrogen—stable manure, which contains ammonia is rich in nitrogen—are phosphorus and potassium Phosphorus is contained in the basic slag which is yielded in large quantities by the iron ore of Lorraine, which is very rich in phosphorus; while potassium is provided for agricultural purposes by the enormous deposits of soluble potash of which Germany has apparently a monopoly. By the application of basic slag and of potash, and especially by using potash, the yield of grain, potatoes and root crops can be vastly increased It cannot be doubted that Germany owes the prosperity of her rural industries not only to the application of science and organisation to agriculture, but also to the fact that Nature has endowed her with an abundance of the two most precious fertilisers—with superphosphates and potash The prosperity of Germany's agriculture is therefore largely due to mineralogical and industrial causes

While Germany's agricultural population has remained approximately stationary, that portion of her population which is engaged in industry and trade has rapidly increased, as the following figures show:

PERSONS EMPLOYED, INCLUDING THEIR DEPENDENTS.

Year	*Agriculture and Forestry.*	*Per Cent.*	*Industry.*	*Per Cent*	*Trade and Transport.*	*Per Cent.*
1882 .	19,225,500	42·0	16,058,100	35·1	4,531,100	9·9
1895 .	18,501,800	35·6	20,253,200	28·9	5,966,900	11·5
1907 .	17,681,200	28·5	26,386,500	42·5	8,278,200	13·3

While the population living by agriculture and forestry has apparently decreased by nearly 10 per cent , the population living by industry and by trade and transport has very greatly increased The increase in employment in the various industries has been unequal. Some industries have advanced more quickly than others. By large groups the persons employed have increased as follows:

EMPLOYED IN GERMANY, EXCLUSIVE OF DEPENDENTS

Year.	*In Mining.*	*In Metal-Working.*	*In the Machinery Trades.*	*In the Chemical Industries*
1882 ..	430,134	459,713	356 089	71,777
1895 ..	536 289	639,755	582,672	115,231
1907 .	860,903	937,020	1,120,282	172,441

Year	*In the Textile Industries.*	*In the Building Trade*	*In Trade and Commerce.*	*Total Industry and Commerce.*
1882 ..	910,089	533,511	838,392	7,340,789
1895 .	993,257	1,045,516	1,332,993	10,269,269
1907 ..	1,088,280	1,563,594	2,063,634	14,435,922

During the period 1882 to 1907 the persons employed in industry and trade have doubled in number. The increase has been smallest in the case of the textile industries, for their workers have increased only by about 20 per cent. The number of workers engaged in mining and in metal-working has almost exactly doubled. The number of hands employed in the chemical industry and in trade and commerce has grown two and a half-fold, while those engaged in the machinery trade and in building operations have trebled. Employment has obviously expanded most strongly in the production of machinery and in the building trade Then came the chemical industries and trade and commerce, and then mining and metal-working. The textile industry came last. However, it would be rash to conclude from the figures given that the progress in the textile industries of Germany has been slow, because production may be vastly increased without correspondingly increasing the number of workers by effecting great improvements in organisation, and especially in mechanical outfit At all events, the figures given indicate a powerful expansion in employment, especially in the most modern industries, in which the greatest skill and scientific knowledge are required, and in building operations The trebling of the number of workers engaged in building testifies to the rapid increase of Germany's wealth and spending power

All modern manufacturing industries depend for their prosperity on the employment of labour-saving machinery driven either by steam or electricity As Germany has little power derived from waterfalls, except in the extreme south of the country, the electric energy used in manufacturing is derived from steam, is based upon coal. Coal is the force which sets in motion nearly all the machinery used in Germany, and the machinery itself, both for manufacturing and for moving raw materials and manufactured goods to and fro by land and by water, is made principally of iron Besides, the iron industry is the most important of German industries It follows that one can measure the expansion of Germany's industrial production from the expansion of her production of coal and of iron Progress is a term of comparison. We can realise the progress made by a nation only by comparing it with the progress effected by another nation which is similarly situated. Let us, therefore, compare the expansion of the production of coal and iron in Germany and in the United Kingdom:

Year.	PRODUCTION OF COAL IN—		PRODUCTION OF IRON IN—	
	Germany.	*United Kingdom*	*Germany.*	*United Kingdom.*
	Tons	*Tons.*	*Tons*	*Tons*
1880	59,120,000	149 380 000	2,729,000	7,802,000
1885	73,670,000	161,960,000	3 687,000	7,369 000
1890	89,290,000	184,590 000	4 658,000	8,033,000
1895	103,960,000	193,350,000	5,465 000	7,827,000
1900	149 790,000	228,770,000	8 521,000	9 052,000
1905	173,660,000	239,890,000	10 988,000	9,746,000
1910	221,980,000	264,500,000	14 793,000	10,380,000
1913	273 650 000	287 410 000	19,292 000	10,260,000

The figures given in the above table indicate that whereas England's industrial progress, as measured by the production of coal and iron, was slow, that of Germany was exceedingly rapid Apparently Germany had before the War overtaken the United Kingdom as a manufacturing nation In 1880 Great Britain produced two and a half times as much coal as Germany Probably she exceeded Germany at that time in the productive capacity of her industries to a similar degree. Rapidly Germany caught up the United Kingdom as a producer of coal, and in 1913 she had drawn almost level with Great Britain. If we allow for the fact that the United Kingdom exports a far larger quantity of coal than Germany, and bear in mind that coal is used in private houses far more wastefully in the United Kingdom than in Germany, because of the prevalence of open stoves in the former country, it seems obvious that the German industries consumed in 1913 considerably more coal than the British industries. We may therefore say that

Germany's industrial coal consumption was greater than England's industrial coal consumption, and that Germany's industrial production was probably greater than England's industrial production.

In iron production also Germany advanced far more rapidly than the United Kingdom. In 1880 Great Britain produced nearly three times as much iron as Germany. Since then the position has been reversed In 1913 Germany produced twice as much iron as the United Kingdom. Between 1880 and 1913 British iron production increased by 30 per cent., but German iron production grew by no less than 600 per cent., or twenty times as fast. Between 1880 and 1895 British iron production increased merely by 25,000 tons, while German iron production increased by 2,736,000 tons, or more than a hundred times as fast. Between 1900 and 1913 the iron production of the United Kingdom increased by 1,208,000 tons, while that of Germany increased by no less than 10,771,000 tons. The tremendous advance of Germany in the production of coal and iron makes it understandable why the number of workers employed in the German mining and metallurgical industries has vastly increased, as has been shown in the beginning of this chapter. Naturally, the production of other industries which consume coal and iron in large quantities has increased at a similarly rapid pace. Moreover, Germany has overtaken Great Britain not only in the production of iron and steel, but also in the production of many commodities made of iron and steel Formerly England was the greatest producer and exporter of machinery in the world. Germany has apparently overtaken England in the production of machinery as well In 1912 Germany's machinery exports, both gross and net, were larger than Great Britain's machinery exports.

The prosperity of the German iron and steel industry and of all the numerous industries dependent upon it is due to a variety of causes. One of the principal causes consists in Germany's great wealth in coal and iron. Another exceedingly important cause consists in the excellence of Germany's inland transport sytem. While in the United Kingdom coal, iron and harbours lie in close proximity, Germany manufactures her iron and steel far inland, and her coal-beds are separated by very large distances from her iron-beds. The great iron-ore mines of Lorraine-Luxemburg are separated from the great coal-beds of the Rhenish-Westphalian district by the distance of more than 200 miles The iron ore sent to the Rhenish-Westphalian district from French Lorraine, Spain and Sweden has, of course, to travel over still longer distances Some decades ago English iron experts, who had examined German affairs, had declared that Germany could never develop a powerful iron industry, because the long distances separating coal and iron from one another made the cost of bringing them together for smelting purposes prohibitive The cost would indeed have been prohibitive if German inland freights were as scandalously high as are British inland freights The exceedingly efficient State railways of Germany charge very low freights, and still lower freights than those charged by the railways prevail on Germany's inland waterways As North Germany is a level plain, the German rivers follow a gentle course. They can easily be regulated, and can easily be connected by lateral canals The excellence of the German inland transport system has therefore powerfully contributed to the prosperity of the German iron and steel industry and of the numerous industries which use iron and steel.

The modern industries have coal and iron for basis. Hence the industrial strength and progress of a nation can be measured by its production of coal and iron, and especially by its consumption of coal and iron. However, as modern industries depend on engine power, the industrial progress of a nation may also be ascertained from the increase of the machinery used As there are no Imperial engine statistics for Germany, I would show the development of the machinery used in Germany by the increase of engine power employed in Prussia. This has progressed as follows:

STATIONARY STEAM ENGINES IN PRUSSIA.

In 1878	887,780	horse-powers
In 1885	1,221,884	.. ..
In 1895	2,358,175	.. ..
In 1905	4,684,948	.. ..
In 1912	6,182,116	.. ..

Between 1878 and 1912 Prussia's engine power has increased sevenfold. Her productive power should have increased more than sevenfold, because modern machinery economises power. The engine power of Germany is approximately 50 per cent greater than that of Prussia. Unfortunately no comparison can be instituted between England and Germany with regard to the progress made in the use of labour-saving machinery, because statistics of the horse-powers used in manufacturing in England over a number of years do not exist

Although, as shown in the beginning of this chapter, the number of workers employed in the German textile industries has increased only by 20 per cent. between 1882 and 1907, German textile production has increased far more rapidly than would appear from the small increase in the number of the textile workers. Professor Oppel, in his book on the German Textile Industries published in Leipzig in 1912, stated that Germany's consumption of the principal materials used in spinning and weaving had increased as follows:

GERMANY'S CONSUMPTION OF—

Year.	*Raw Cotton.*	*Raw Wool.*	*Raw Silk.*
	Tons.	*Tons.*	*Tons.*
1875 ..	114,500	38,900	2,630
1882 ..	140,600	70,300	2,414
1895 ..	283,400	163,600	4,302
1910 ..	380,734	187,116	7,242

It is regrettable that Professor Oppel does not supply figures for the intervening years.

Measured by the consumption of raw materials, the production of cotton goods, woollen goods and silk goods approximately trebled between 1882 and 1910, and considerably more than trebled between 1875 and 1910. Germany is not only self-supporting in textiles, but on balance is an exporter of these goods. In 1875 she exported on balance textiles to the value of £6,860,000. That excess had grown by 1910 to £34,375,000, or had increased fivefold The development of the German textile industries, both as suppliers to the home market and as exporters, is satisfactory, although, of course, England is ahead of Germany in the production of cotton goods, while Germany is far ahead of Great Britain in the production of silk goods

The increase of the wealth of a modern nation depends in the first place upon production, and only in the second place upon trade A nation can conceivably be wealthy with a vast production even if its trade is insignificant, but it is inconceivable that a nation should become prosperous by a large trade if it lacked production. A nation can grow wealthy by trade only if it monopolises trade; if the other nations are so backward and so ignorant of trade that it can make vast profits out of their ignorance.

Commerce may be an important creator of wealth, but in the modern world it is no longer of preponderant importance. Commerce may be internal or external, or both internal and external Germany has vastly increased both her internal and her external trade The rapid and gigantic expansion of Germany's inland trade may be gauged from the development of her railway traffic, which has grown as follows.

GOODS CARRIED BY RAILWAYS.

In 1880	165,000,000 tons.
In 1912	668,000,000 ,,
In 1880	13,487,000,000 ton-kilometres.
In 1912	66,031,000,000 ,, ,,

Between 1880 and 1912 the tonnage transported by the German railways has increased fourfold, while the ton-kilometres have increased fivefold It is safe to assert that no similar progress has been realised by any other European nation.

The progress of Germany's inland commerce carried on by waterways has been still more remarkable than the increase of her railway traffic The development of Germany's inland shipping trade may best be gauged from the following figures:

GERMANY'S INLAND SHIPPING.

Year.	*No of Ships.*	*Carrying Capacity.*
	Tons.	*Tons.*
1882	18,715	1,658,266
1887	20,390	2,100,705
1892	22,848	2,760,553
1897	22,564	3,370,447
1902	24,839	4,877,509
1907	26,235	5,914,020
1912	29,533	7,394,657

While the number of ships used in Germany's inland shipping has increased by only about 50 per cent., their carrying capacity has increased by nearly 400 per cent. In other words, the individual ships have grown bigger and bigger. Their efficiency has been vastly increased. Many marvel at the development of Germany's Merchant Marine, but the increase of her inland shipping is still more wonderful. In 1912 Germany's inland fleet was far larger than her huge Merchant Marine. Her Merchant Marine had in that year 3,023,725 tons net and 4,708,998 tons gross.

The progress of the external commerce of a nation can be measured either by its foreign trade or by its merchant marine Let us see how both have developed in Germany. Germany has become a country which lives chiefly by its manufacturing industries According to the economists of the *laissez-faire* school, a protective tariff cripples the industries of a nation and lames its export trade in manufactured goods In view of these doctrines it is particularly interesting to study the development of Germany's exports of manufactured goods

GERMANY'S EXPORTS OF DOMESTIC MANUFACTURES.

Year.	£
1880	83,500,000
1890	107,440,000
1900	149,100,000
1910	239,800,000
1913	319,800,000

Between 1880 and 1913 Germany's exports of manufactured goods have practically quadrupled. No similar showing can be made for the United Kingdom.

Germany's Merchant Marine has increased as follows since the creation of the Empire:

Year.	*Tons Net.*
In 1871	982,355
In 1881	1,181,525
In 1891	1,433,413
In 1901	1,941,645
In 1911	2,903,570
In 1913	3,153,724

The increase of the German Merchant Marine has been exceedingly rapid. In a few decades it has obtained the second place among the mercantile fleets of the world.

Production is more important than commerce as a creator of wealth The figures given in these pages show that German production in field, mine and factory has increased much faster than British production, notwithstanding, or probably because, the economic policy which she has pursued, of which Fiscal Protection is merely a part, and possibly a part of inferior importance. During the last few decades Germany, which was formerly a poor agricultural State, has become an exceedingly wealthy industrial and commercial country Wealth may be of two kinds. It may be real or conventional. The real wealth of a nation consists of fields, factories, machinery, towns, railways, canals, etc. The conventional wealth of a nation consists of paper securities, precious metals, bank deposits and the like Of course, the real wealth of a nation is far more important than its conventional wealth. It is clear that Germany's national capital has increased enormously through the increase of her real wealth, through the vastly augmented productive power of her fields and factories, through the increase of her machinery, the enlargement and improvement of her towns, the vast additions made to railways, canals and other valuable undertakings. However, as men generally, though very erroneously, see wealth rather in conventional than in real values, let us briefly glance at the development of Germany's paper wealth. Wealth, like poverty, is a term of comparison. We can, therefore, best measure the progress of the paper wealth of Germany by comparing it with the development of paper wealth in Great Britain. The deposits in the savings banks in the two countries have grown as follows:

Year	*Savings Banks Deposits in Germany*	*Savings Banks Deposits in Great Britain.*
	£	£
1880	130,690,000	77,721,084
1890	256,865,000	111,285,359
1900	441,929,000	187,005,562
1910	839,028,000	221,158,021
1913	984,450,000	241,507,028

In 1880 the German savings banks deposits exceeded the British by only £53,000,000. In 1913 the German savings banks deposits exceeded the British by no less than £743,000,000 The increased prosperity of the German people can be measured not only by their improved conditions of life and by the colossal growth of the savings banks deposits, but also by the growth of the deposits in the ordinary banks, in the co-operative societies, building societies, etc , as well. In 1913 the deposits in the German co-operative societies, building societies, etc., were probably larger than those contained in the British savings banks.

The gigantic increase in Germany's wealth can also be measured by the increase in the amounts insured against fire. In large portions of Germany fire insurance is compulsory for all owners of property. The amounts insured in those districts in which compulsory insurance prevails have increased as follows:

COMPULSORY FIRE INSURANCE OF BUILDINGS ONLY.

Year.	*Berlin.*	*Hamburg*	*Kingdom of Saxony.*	*All Districts Subject to Compulsory Insurance.*
	M.	*M.*	*M*	*M.*
1868 ..	837,000,000	449,000,000	1,645,000,000	9,872,000,000
1888 ..	2,627,000,000	1,213,000,000	3,472,000,000	20,223,000,000
1906 ..	4,764,000,000	2,507,000,000	6,737,000,000	37,057,000,000

Unfortunately, the figures given are somewhat fragmentary. They are the only ones which I have been able to obtain They have been extracted from the Financial White Books published by the German Government in 1908 in connection with the projected reform of the Imperial finances. The districts subject to compulsory insurance against fire contain three-eighths of the population of Germany Measured by the value of buildings alone the wealth of Germany has approximately doubled between 1868 and 1888, and has doubled once more, roughly speaking, between 1888 and 1906. That progress is truly remarkable

Up to the outbreak of the War Germany's wealth had been growing at an extraordinarily rapid rate In 1913 Herr Helfferich, who at that time was a director of the Deutsche Bank, and who during the War became the head of the German Imperial Treasury, estimated the wealth of the German people as follows in his book *Germany's Economic Progress and National Wealth:*

Buildings and other property insured against fire	£10,000,000,000
Land in the country and the towns	3,500,000,000
Mines	300,000,000
Ships, goods in transit and metallic currency ..	300,000,000
Public property, not insured against fire, including railways	1,500,000,000
Capital invested abroad	1,000,000,000
Total	£16,600,000,000

At the end of his book Herr Helfferich summed up Germany's financial position as follows:

> The German national income amounts to £2,000,000,000 a year, as compared with an income of from £1,100,000,000 to £1,250,000,000 about the year 1895
>
> Of these £2,000,000,000, about one-sixth, or £350,000,000, is devoted to public purposes, and about £1,250,000,000 is spent by private individuals. From £400,000,000 to £425,000,000 are added annually to the national wealth by savings and investments, while the national property is in addition increased by about £100,000,000, owing to the rise in values Thus, altogether £500,000,000 are added annually to the national wealth as compared with from £225,000,000 to £250,000,000 about the year 1898.
>
> The national wealth of Germany amounts to-day to more than £15,000,000,000, while it amounted only to approximately £10,000,000,000 about the year 1895.

Before the War the wealth of Great Britain was supposed to amount to about £15,000,000,000, and the British national income was calculated to reach £2,000,000,000. It would therefore appear that Germany has in a few decades overtaken great Britain not only in industrial production, but also in accumulated wealth, and that her yearly income, which formerly was exceedingly small, equalled in 1913 that of the United Kingdom. Other German authorities have arrived at a similar conclusion, and some of them have endeavoured to forecast the future development of the wealth of Germany and of some other countries. For instance, Herr Steinmann-Bucher wrote in his book 350 *Milliarden Deutsches Volksvermögen* :

> Formerly we were told that the wealth of Germany amounted to £10,000,000,000, that of France to £10,000,000,000, and that of Great Britain to £12,500,000,000. To-day we may say that Germany's wealth comes to £17,500,000,000, France's wealth at most

to £12,500,000,000, and that of Great Britain to £16,000,000,000. In twenty years, in 1930, Germany will have a national wealth of £30,000,000,000, which should compare with a wealth of £15,000,000,000 in the case of France and of £21,000,000,000 in the case of Great Britain.

The facts and figures supplied in these pages show that Germany's production, her trade and her accumulated wealth have during the last few decades grown with extraordinary rapidity According to the high authority of Herr Helfferich, Germany added before the War every year £500,000,000 to her accumulated wealth That is a gigantic surplus It would therefore appear that Germany should be able, if defeated, to pay a very large War indemnity in yearly instalments by pledging her surplus income for a considerable number of years As the damage which Germany has done to her opponents must be estimated to amount to at least £50,000,000,000, she would have to devote her entire surplus to the payment of a War indemnity during one hundred years That is scarcely a practicable proposition Besides, we must doubt whether Germany's prosperity would survive a great military defeat The defeat of the German armies might be accompanied by vast damage to German property in the frontier districts, and it might be followed by civil war within Germany, by the break-up of the German Empire, and by considerable territorial losses The retrocession of Alsace-Lorraine to France would deprive Germany of the bulk of her iron ore, while the recreation of an independent Poland, in accordance with the principle of nationality, would deprive her of the enormous Silesian coalfield, which alone contains more coal than the whole of the United Kingdom

The German people, if defeated, might conceivably have the ability to pay a very large, but scarcely an adequate, indemnity out of their yearly surplus, but would they also have the will to do it? It would be difficult to compel them to pay vast sums to the Allies for decades, for compulsion would involve the occupation of German frontier distiets, harbours, coalfields, etc., by Allied garrisons for an indefinite number of years. Such an arrangement would mean a prolonged state of bondage enforced upon the German people by military means. Besides, if Germany were to pay for the damages done by her troops out of her yearly surplus, the Allies would have to re-establish Germany's prosperity. Otherwise they could obtain only little from the country. As Germany's industrial prosperity was largely created at the cost of the other industrial States, the renewed increase of the wealth of Germany would involve considerable loss to the Allies, a loss which conceivably would be greater than the monetary indemnities which might perhaps be obtained from her. In other words, the Allies would have to hand over to Germany their markets and part of their industries in return for utterly insufficient monetary payments. They would scarcely be prepared to re-establish Germany's prosperity to the harm of their own industries. Very likely defeat will end the German Empire, and will bring Germany's vast prosperity also to an end. It seems clear that Germany cannot pay an adequate monetary indemnity if defeated.

While Germany will probably be unable to pay, after an ultimate defeat, an adequate indemnity in cash, she can easily do so in goods. Her mineral resources alone represent, as I have shown in the preceding chapter, a value of at least £237,678,000,000. By seizing the coal, iron and oil resources of their opponents, and by proclaiming that they would retain them as an indemnity, the Germans have created an important precedent which they may live to regret. The Germans have endeavoured to deprive France and Russia of all coal and iron so as to make these countries militarily helpless and economically dependent upon Germany for all time The Germans well understand the importance of coal and iron in the lives of nations The coal and iron beds are Nature's power-house and Nature's arsenal They provide nations with wealth and with weapons for war A nation can more easily be disarmed by seizing its coal and iron fields than by dismantling its fortresses and seizing its ships and arms Ships, arms and fortresses may be recreated, but coal and iron fields which have been lost cannot be replaced The loss of these disarm nations for all time. Those considerations which have guided Germany's statesmen in their action towards their opponents, will no doubt influence the attitude of the statesmen of the Allied nations in case of a complete victory The Allied statesmen will probably prefer actual guarantees for the maintenance of peace on the part of Germany to paper promises It stands to reason that the longer the War will last, the greater the damage done by the German armies will be, the greater will be the compensation which the Allies will eventually have to claim That consideration should be borne in mind by the German statesmen and business men and by the German nation as a whole.

CHAPTER XV

THE FUTURE AND THE NATURAL RESOURCES OF THE UNITED STATES

THE majority of English people are so much taken up with current national and local questions that they can give but little time to the consideration of the future. If they discuss the future, they rather discuss England's future relations with foreign countries and with the British Dominions and Colonies than those with the United States. They rather reflect upon the position and progress of France, Russia, Canada, India, Persia, China, than stop to think of the probable development of the greatest English Colony, the North American Republic.

What will be the future of the United States?

The future of a State depends upon its territory and its natural resources, and upon the character and policy of the people. Compared with the principal States of Europe, the United States are very sparsely populated, as will be seen from the following table:

	Square Miles.	*Inhabitants*	*Inhabitants per Sq. Mile.*
United States without Alaska (1910)	2,973,890	92,027,874	30·9
Russia in Europe (1910) ..	1,909.519	134,000,000	61·0
Spain (1910)	194.744	19,588,688	100·6
Hungary (1910)	125,395	20,886,487	166·6
France (1911)	207,075	39,601,509	191·2
Austria (1910)	115,802	28,571,934	246·7
Germany (1910)	208,770	64,925,993	311·0
Italy (1910)	110,653	34,687,000	313·5
United Kingdom (1911) ..	121,371	45,216,665	372·6

The continental United States—that is, the United States without Alaska and the other outlying possessions—are 50 per cent. larger than is European Russia. They are fifteen times as large as the German Empire, and twenty-five times as large as the United Kingdom. If the United States were to become merely as densely populated as European Russia, the growth of which is impeded by its extensive barren wastes and by the scarcity of railways and of roads, they would have room for 200,000,000 inhabitants If they were to become as densely populated as Germany, which seems by no means impossible, they would have room for nearly 1,000,000,000 inhabitants The bulk of the United States population lives in the north-eastern corner of the Republic, on, or near to, the Atlantic coast. According to the Census of 1910 the centre of population lies at Bloomington in Indiana, between the 86th and 87th degree of Western longitude, not far from, and slightly east of, Chicago. How densely the North-Eastern States of the Union are populated, if compared with some of the most fruitful, fertile and promising States in the South and West, will be seen from the following figures:

POPULATION PER SQUARE MILE IN 1910.

Massachusetts	418·8	Louisiana	36·5
New Jersey	337·7	Washington	17·1
Connecticut	231·3	Nebraska	15·5
New York	191·2	California	15·3
Pennsylvania	171·0	Texas	14·8
Maryland	130·3	Florida	13·7
Ohio	117·0	North Dakota	8·2
Delaware	103·0	South Dakota	7·6
Illinois	100·6	Oregon	7·0

Only the three States Massachusetts, New Jersey and Connecticut may be considered to be densely populated according to the European standard. As these three States have together an area of only 21,455 square miles, they comprise only about $\frac{1}{150}$ of the territory of the Republic. Except for a few very small patches which are densely peopled, the United States are much underpopulated

Knowledge of the past often enables one to make a forecast of the future. In the past the population of the United States has very rapidly increased The rapidity of its growth may perhaps best be gauged by comparing the increase of the population in the United States with that of the United Kingdom by means of the Census figures. Such a comparison yields the following result:

POPULATION OF—

The United Kingdom.		*The United States (without Alaska and Outlying Possessions).*	
1821	21,272,187	1820	9,638,453
1831	24,392,485	1830	12,860,702
1841	27,036,450	1840	17,036,353
1851	27,724,056	1850	23,191,876
1861	29,321,288	1860	31,443,321
1871	31,845,379	1870	38,558,371
1881	35,241,482	1880	50,155,783
1891	38,104,975	1890	62,947,714
1901	41,976,827	1900	75,994,575
1911	45,216,665	1910	91,972,266

In 1820-1821 the population of the United Kingdom was a little more than twice as large as that of the United States. In 1860-1861 the population of the two countries was approximately equal. In 1910-1911 the United States had more than twice as many inhabitants as the United Kingdom. In less than a century, the relative importance of the two countries has been completely. reversed While between 1821 and 1911 the population of the United Kingdom has a little more than doubled, that of the United States has grown more than tenfold. During the last decennial intercensus period the population of the United Kingdom has increased by 3,240,000, while that of the United States has grown by no less than 15,978,000.

The population of the United States is increasing very fast through natural increase and through immigration, but the actual percentual increase has gradually, though somewhat irregularly, declined If we wish to gauge the future development of the population of the United States, it is safest to assume that the rate of increase will continue slackening in the same somewhat erratic manner in which it has slackened hitherto. A table of the probable future increase of the American population based on this principle has been compiled by Mr Henry Gannett, of the United States Geological Survey. It shows the following result:

Year.	*Population of the United States.*	*Increase between Decennial Periods.*
		Per Cent.
1790	3,929,214	
1800	5,308,483	35
1810	7,239,881	36
1820	9,638,453	33
1830	12,866,020	33
1840	17,069,453	33
1850	23,191,876	36
1860	31,443,321	36
1870	38,558,371	23
1880	50,155,783	30
1890	62,947,714	25
1900	75,994,575	21
1910	91,972,266	21
1920	104,000,000	16
1930	119,000,000	14
1940	134,000,000	13
1950	150,000,000	12
1960	167,000,000	10
1970	184,000,000	10
1980	202,000,000	10
1990	225,000,000	11
2000	249,000,000	11
2010	274,000,000	10
2020	299,000,000	9
2030	325,000,000	9
2040	350,000,000	8
2050	375,000,000	7
2060	400,000,000	7
2070	425,000,000	6
2080	450,000,000	6
2090	475,000,000	5
2100	500,000,000	5

The table given in the foregoing contains an extremely cautious statement of the probable future increase of the American population. Between 1900 and 1910 the population of the United States increased by 21 per cent.

Assuming that in the course of the next five decades that increase declines to 16, 14, 13, 12, 10 per cent., that it remains approximately stationary during the six ensuing decades, and that the increase of population rapidly sinks during the nine following decades from 10 per cent. to only 5 per cent per decade, we find that the population of the United States will come to 249,000,000 in the year 2000, and to 500,000,000 in the year 2100 Mr. Gannett's forecast is so cautious and conservative that it may very possibly be exceeded, for if the United States should become merely as densely peopled as European Russia is at present, they would have room for 200,000,000 people; if they should become as densely peopled as Spain, they should have room for 300,000,000, and if they should become as densely peopled as Germany or Italy, they should have room for 1,000,000,000 people. The United States are absurdly thinly peopled California's climate resembles that of Italy, and it is 50 per cent. larger than is Italy. However, while Italy has a population of 34,687,000, California has only 2,377,549 inhabitants. Texas is 30 per cent. larger than the German Empire. However, while the German Empire had in 1910 64,925,993 subjects, Texas had in 1911 only 3,896,542 inhabitants.

There is evidently no inherent improbability in the assumption that the United States will have 250,000,000 inhabitants at a time when children now born have arrived at a ripe old age; that in the year 2000 the United States will have as many inhabitants as the United Kingdom, Germany, France, Austria-Hungary, Italy and Spain combined, and that by the year 2100 they will have a considerably larger population than the Chinese Empire. The United States have enough room for 500,000,000, and probably for 1,000,000,000 people. It is therefore conceivable that the American people may obtain the leadership of the Anglo-Saxon race and the rule of the world. Carthage, a Phœnician colony, in course of time far outstripped the motherland and became the protectress of the Phœnician colonies throughout the world. Similarly, the United States may become the protectress of the Anglo-Saxon race throughout the world in succession to Great Britain. The time may come when New York will hold the place of London, when Washington will be the capital of all the Anglo-Saxon States and of the world. A hundred or two hundred years hence the American people may talk with the same feelings of amused wonder of the little military States of Western Europe of the twentieth century with which men now speak of the tiny city States of Ancient Greece and of the not much larger Italian town republics of the Middle Ages.

Whether the United States will become a State of 500,000,000 or of a 1,000,000,000 white people depends, of course, not only on the size of the American territory, which is ample, but also on its natural resources. The marvellous growth of the American Republic is largely due to immigration. The United States will continue to attract the emigrants from overcrowded Europe only if these can earn a good living. If the natural resources of the United States should prove insufficiently attractive, or if they should prematurely become exhausted by ruthless and wasteful exploitation, European emigrants will go to Canada, South Brazil, Argentina, Australia, New Zealand, South Africa, and elsewhere, and the Great Republic will not dominate the world by weight of numbers and by its supremacy in wealth and power.

The natural resources of the United States are enormous, and their vastness has been the principal attraction to European emigrants. The United States are singularly blessed with an excellent, healthful, bracing, and varied climate and an extremely fruitful soil. On both Oceans they have an abundance of excellent harbours.

The country possesses most bountiful mineral resources and colossal forests. It has enormous water-power which can be converted into electricity and which is sufficient to drive all the machinery in the land, and its vast territory is opened and made easily accessible to man by a unique chain of lakes and by a most wonderful system of rivers and streams. No less than 148 streams, with a total navigable length of 5,365 miles, wend their way towards the Atlantic; 1,606 miles of navigable waterways open the United States towards the Pacific; 315 miles of navigable rivers, and the vastest system of interconnected inland seas in the world, open the United States towards Canada; 5,212 miles of navigable rivers, exclusive of the Mississippi, are tributary to the Gulf of Mexico; while the Mississippi system comprises no less than 13,912 miles of navigable waterways. Altogether the United States had in 1910, 26,410 miles of navigable rivers and streams. In the same year the United Kingdom had only 23,387 miles of railway. The length of the navigable waterways of the United States is approximately equal to the circumference of the globe.

The United States have attracted, and will continue attracting, millions of emigrants from the over-populated countries of the world—between 1820 and 1910 the United States have received 29,784,222 alien passengers and immigrants, and recently they received on an average about 800,000 immigrants per year—because the vast natural resources of the country yielded a good living to all comers. Among the nations of the world the United States are at present the largest producers of corn, wheat, cotton, tobacco, pigs, mules, fish, fruit, coal, iron, copper, zinc, lead, petroleum, natural gas, timber, etc. Providence has blessed the United States with abundance. As the enormous prosperity and the rapid progress of the country are due to the vastness of its natural resources, it is obvious that their exhaustion would bring about its decline.

The greatness of the productive power of the United States can best be seen by comparison. By far the greatest British industry is the cotton trade. According to the British Census of Production, the yearly output of the British cotton trade came in 1907 to £132,000,000; while the output of the second largest industry, the coal trade, was officially valued at £119,554,000 The United States corn (maize) crop—corn is mostly used for stock feeding—is as a rule worth at least £300,000,000 per year; the production of animals yields, on an average, about £360,000,000 per year to the American farmers; the production of wheat and oats is worth about £210,000,000 per year; that of raw cotton and cotton seed about £160,000,000 per year; that of hay and forage about £160,000,000 per year; milk, butter and cheese are worth £150,000,000 per year; the production of coal is worth £200,000,000 per year; that of petroleum, £50,000,000 per year, etc.

The possession of raw materials enables a nation to control industry The United States, producing the bulk of the world's cotton, can, for instance, should they choose to, dominate the cotton trade of the world. The extreme profitability of the possession of raw materials may be illustrated by a single example. The production of the American forests is valued at £40,000,000 per year, of which about £35,000,000 represent the value of timber. The timber is turned partly into manufactured articles and partly into paper. The manufactured articles made of wood are worth £150,000,000 per year, and the paper is worth £50,000,000 per year; while the production of the printing and publishing trade enhances the value of part of the paper produced to £150,000,000 per year.

While the rural industries of the United States yield, according to the American Census, £1,700,000,000 per annum, the production of British agriculture in all its branches came in 1909 only to £210,000,000, according to the British Census of Production The value of the American maize crop alone is 50 per cent larger than the value of the entire agricultural production of the United Kingdom

Although the production of American agriculture is enormous, it has, as regards monetary value, been rapidly overtaken by the manufacturing industries, for these have progressed much faster While the production of American agriculture was, according to the Census of 1910, worth £1,700,000,000, that of the manufacturing industries was then worth £4,135,000,000 There can be no doubt that the economic balance in the United States has been seriously disturbed; that agriculture has not kept pace with the industrial advance of the country. The United States have, possibly, not developed their agriculture as much as they might have done. Thus they have become a predominantly industrial State, and they have been, and are still to some extent, neglecting and destroying those natural resources which form the basis of their prosperity.

During many decades the natural resources of the United States were far in excess of the needs of the people. The immigrants from England found that in the United States wages in general were from two to three times as high as in Great Britain, and that the cost of the necessities of life—but not of the luxuries—was lower. But during the last two decades the inhabitants of the United States have drawn lavishly and extravagantly upon the resources of Nature. In pursuit of wealth they have crowded into the towns. They have recklessly wasted certain natural resources; and as agricultural development has not kept pace with industrial expansion, life in the United States is no longer as easy and as cheap as it used to be The following table shows at a glance the relative progress of agriculture and of the manufacturing industries in the United States:

PRODUCTION OF—

Year.		*Wheat.*	*Corn.*	*Cotton.*	*Cattle.*
1860	..	173,104,924	838,792,740	3,849,469	25,616,019
1870	..	235,884,700	1,094,255,000	4,352,317	25,484,100
1880	..	498,549,868	1,717,434,543	6,605,750	33,258,000
1890	..	399,262,000	1,489,970,000	8,652,597	52,801,907
1900	..	522,229,505	2,105,102,516	10,245,602	43,902,414
1910	..	635,121,000	2,886,260,000	11,965,962	69,080,000
1912	..	730,267,000	3,124,746,000	14,076,430	57,959,000

Year.		*Coal.*	*Pig Iron.*	*Copper.*	*Population.*
		(*Long Tons*).	(*Long Tons*)	(*Long Tons*).	
1860	..	13,044,680	821,223	7,200	31,443,321
1870	..	29,496,054	1,665,179	12,600	38,558,371
1880	..	63,822,830	3,835,191	27,000	50,155,783
1890	..	140,866,931	9,202,703	115,966	62,947,714
1900	..	240,789,310	13,789,242	270,588	75,994,575
1910	..	447,853,909	27,303,567	482,214	91,972,266
1912	..	491,071,429	29,727,137	557,589	95,410,503

Since 1860 the population of the United States has trebled, and agricultural production has apparently increased at approximately the same ratio, but mineral and mining production have increased very much faster. During the years under consideration the production of coal and iron has increased nearly fortyfold and that of copper nearly eightyfold. These marvellous figures give some measure of America's industrial progress, If we look a little more closely into the figures relating to agricultural production, we find that while the production of wheat, corn and cotton has increased from three to fourfold, the number of cattle has only a little more than doubled, and has therefore increased far more slowly than has the population. Between 1907 and 1912 the number of cattle has declined from 72,533,996 to 57,959,000. This explains the relative scarcity and expensiveness of meat in the United States and in the world, for America is a most important factor in the world's meat-supply, and shows that the recent scarcity and dearness of meat has not been caused by the American Beef Trusts, as has often been asserted.

The United States, which formerly were principally an agricultural country, have become in the course of a few decades by far the largest manufacturing country in the world. Not so long ago the productiveness of the farms and of the factories was about equally great in the United States, but now the factories predominate to a very marked extent. According to the Census of 1910 the production of the United States manufacturing industries was valued at $20,672,051,870, while the production of the farms came only to $8,498,311,413. Cobden prophesied: "Great Britain is, and always will remain, the workshop of the world." Now the United States are the world's greatest workshop. It is worth noting that the manufacturing output of the American industries, measured by value, is at least three times as great as is the manufacturing output of the British industries.

Until lately the United States were by far the greatest exporters of wheat, meat, dairy produce, etc., in the world, but now their surplus of food is rapidly shrinking. How rapidly it is diminishing will be seen from the following figures:

UNITED STATES EXPORTS OF—

Year.	*All Bread-Stuffs.*	*Animals of All Kinds.*	*All Meat and Dairy Produce.*
	Dols	*Dols.*	*Dols*
1902	213,392,061	44 871,684	199,861,378
1903 . ..	221,391,922	34,781,193	179,839,714
1904 .. .	149,339,106	47,977,875	176,027,586
1905	110,254,247	46,728,781	169,998,873
1906 .. .	187,457,844	49,139,568	210,890,065
1907 .	184,938,043	41,203,080	202,392,508
1908 .	215 584,345	34,101,289	192,802,708
1909 .. .	160,161,624	22,645,438	166,521,949
1910 . .	133,579,611	17,447,735	130,632,783
1911 .. .	124,913,537	12,048,653	149,389,737
1912 ..	123,979,715	15,447,987	156,260,876

The foregoing figures show a steady and continuous decline in the exports of foodstuffs if measured by value. As prices had considerably risen between 1902 and 1912, the decline would be still greater if measured by weight. The exports of live cattle, beef and butter have diminished in the most remarkable way. Between 1902 and 1912 the exports of cattle have shrunk from $29,902,212 to $8,870,075, those of beef have shrunk from $29,045,056 to $1,596,319, and those of butter have declined from $16,002,169 to $6,092,235. The United States have no longer a huge regular surplus of cattle, beef and butter, and before long they may not produce sufficient meat for their domestic requirements. The United States Beef Trust has for a long time been supplying the British market with Argentine and Australian meat, and has been shipping Argentine and Australian meat to the United States as well. Notwithstanding their enormous area and relatively small population, the United States are in danger of becoming dependent upon foreign nations, not only for part of their meat and dairy produce, of which already a considerable and growing quantity is being imported, but for their vegetables, fruit and bread-corn as well. That is surely alarming when one bears in mind that the vast and fruitful territory of the United States should suffice to supply all the food required by 500,000,000 people.

American statesmen have observed the course of events with serious misgivings. They recognise that agriculture is not sufficiently productive in the United States, partly because the American people flock to the towns, and partly because the American farmers have exhausted part of the soil by a somewhat reckless exploitation. With similar recklessness the owners of the forests and of the mines have not only exploited, but devastated the natural resources within their reach, to the irremediable harm of the nation. Such developments are apt to take place in new countries, as may be seen by similar developments in the British Dominions.

The people of the United States have been grumbling at the ever-increasing cost of living. That increase, though often attributed to the Tariff and the Trusts, is no doubt principally due to the waste and the insufficient development of the country's natural resources. Patriotic and far-seeing Americans have begun to understand that the future greatness of their country depends on the preservation of its natural resources; that the time is past when the natural resources of the country could safely be left to unchecked and uncontrolled individuals. The American people have become aware of the fact that they must stop the reckless waste of their greatest national assets. They have begun to recognise that the preservation of their gigantic natural resources is perhaps the most important problem of the Republic; that the preservation of the natural resources is a national question which calls for the co-operation of all citizens, regardless of party.

Thus the great movement for conserving and wisely exploiting America's natural resources has arisen.

The conservation movement in the United States was created by scientific men. The first impetus was given to the movement by the rapid reduction of the American forests which began to alarm far-sighted men. In the early seventies of the last century it was recognised that the American forests would rapidly be destroyed unless their wasteful exploitation was discontinued. The American Association for the Advancement of Science presented, in 1873, a memorial for the protection of forests by the State. Other memorials followed, and a movement was set on foot which resulted in the creation of a Forestry Bureau in the Department of Agriculture, and in laws which led to the creation of the first national forest reserve in 1891.

President Roosevelt took a great interest in the conservation movement. He made numerous speeches on the subject, and on January 22, 1909, he sent out a most memorable message on the policy of conserving the national resources, which the historian of the future may possibly place side by side with the Declaration of Independence. While the Declaration of Independence solemnly affirms "the unalienable right of men to life, liberty and the pursuit of happiness," the Conservation Message affirms in equally solemn and impressive words the right of all Americans, born and yet unborn, to the undiminished possession of their great national heritage. Mr. Roosevelt stated:

> . . . The conservation of our resources is the fundamental question before this nation, and our first and greatest task is to set our house in order and to begin to live within our means.
>
> The first of all considerations is the permanent welfare of our people, and true moral welfare, the highest form

of welfare, cannot permanently exist, save on a firm and lasting foundation of material well-being.

It is high time to realise that our responsibility to the coming millions is like that of parents to their children, and that in wasting our resources we are wronging our descendants.

There are differences of opinion as to many public questions, but the American people stand nearly as a unit for waterway development and for forest protection.

The greatest questions before us are not partisan questions, but questions upon which men of all parties and all shades of opinion may be united for the common good.

The function of our Government is to ensure to all its citizens, now and hereafter, their rights to life, liberty and the pursuit of happiness. If we of this generation destroy the resources from which our children would otherwise derive their livelihood, we reduce the capacity of our land to support a population, and so either degrade the standard of living or deprive the coming generations of their right to life on this Continent.

The right of every man to live his own life, provide for his family, and endeavour, according to his ability, to secure for himself and for them a fair share of the good things of existence, should be subject to one limitation and to no other. The freedom of the individual should be limited only by the present and future rights, interests and needs of the other individuals who make up the community. We should do all in our power to develop and to protect individual liberty, individual initiative, but subject always to the need of preserving and promoting the general good. When necessary, the private right must yield, under due process of law and to a proper compensation, to the welfare of the commonwealth.

We are striving to hold in the public hands the remaining supply of unappropriated coal, for the protection and benefit of all the people.

The nation, its Government and its resources exist, first of all, for the American citizens. . . .

With similar solemn impressiveness a Conference of State Governors which was held from May 13 to May

15, 1908, and which was attended by the Governors of the individual States the entire Cabinet, the Justices of the Supreme Court, the members of both Houses of Congress and by representatives of the great national organisations of the United States, placed on record the following declaration

> We, the Governors of the States and Territories of the United States of America, in conference assembled, do hereby declare the conviction that the great prosperity of our country rests upon the abundant resources of the land chosen by our forefathers for their homes, and where they laid the foundations of this great nation.
>
> We look upon these resources as a heritage to be made use of in establishing and promoting the comfort, prosperity and happiness of the American people, but not to be wasted, deteriorated or needlessly destroyed.
>
> We agree that our country's future is involved in this, that the great natural resources supply a material basis upon which our civilisation must continue to depend, and upon which the perpetuity of the nation itself rests.
>
> We agree in the light of the facts brought to our knowledge, and from information received from sources which we cannot doubt, that this material basis is threatened with exhaustion. Even as each succeeding generation from the birth of the nation has performed its part in promoting the progress and development of the Republic, so do we in this generation recognise it as a high duty to perform our part, and this duty, in large degree, lies in the adoption of measures for the conservation of the natural wealth of the country. . . .

The conservation movement was thus impressively launched, and it was carried on not only by scientists and by the State Governors and other officials, but was enthusiastically endorsed by many of the ablest business men in the United States. The late Mr. James J. Hill, for instance, one of the leading railway magnates in the United States, and the leading railway man in the North-West, wrote in his book *Highways of Progress*, published in 1910, which was very largely devoted to the policy of conserving America's natural resources, as follows:

> The highest conception of a nation is that of a trustee for posterity. The savage is content with wresting from Nature the simple necessaries of life. But the modern idea of duty is conservation of the old and modelling of the new in order that posterity may have a fairer dwelling-place, and thus transmit the onward impulse. The ideal of the prudent, loving, careful head of every family is the true ideal for a nation of rational men.

These words form the opening sentences of Mr. Hill's remarkable book.

Upon Mr. Roosevelt's recommendation, a Joint Conservation Conference was held at Washington in December, 1908. It was attended by a large number of political leaders, delegates and the most eminent experts from all parts of the United States, and it issued a valuable Report in three volumes, which, in Mr. Roosevelt's words, contains "the first inventory of its natural resources ever made by any nation." From that Report we learn how the natural resources of the United States have been wasted in the past, and how they may be preserved and increased in the future. In its recommendations the formation of permanent Conservation Commissions in all the individual States was advocated, "to the end that each Commonwealth may be aided and guided in making the best use of those abundant resources with which it has been blessed," and nation-wide co-operation of all conservation agencies of the Union was demanded. Imitation is the sincerest form of flattery. It is worth noting that the Canadian Government has taken the greatest interest in the conservation movement in the United States, and that the Dominion has created a national Conservation Commission and provincial Conservation Commissions of its own.

Hitherto the American farmers have only too frequently "mined for wheat." They have sown wheat year after year without endeavouring to maintain the fertility of the ground by manuring, rotation, etc. Cotton has often been grown in the same short-sighted and wasteful manner. Although great agricultural improvements have taken place through the activity of the excellent U.S. Department of Agriculture and the Departments of Agriculture of the individual States, in consequence of reckless farming the produce of the crops has gradually diminished in quantity and deteriorated in quality in some of the older States, and when the soil at last refused to yield the farmers have abandoned the ruined land to weeds and have commenced a similar process of agriculture, or, rather, of devastation, elsewhere. Thousands of abandoned farms may be found in all parts of the United States, and especially in the East. From the last four Decennial Censuses of the United States I have extracted the following significant figures:

ACREAGE OF IMPROVED LAND IN FARMS.

States.	1880	1890.	1900.	1910.
	Acres.	*Acres.*	*Acres.*	*Acres.*
Maine	3,484,908	3,044 666	2,386,889	2,360,657
New Hampshire	2,308,112	1,727,387	1,076,879	929,185
Vermont ..	3,286,461	2,655,943	2,126,624	1,633,965
Massachusetts ..	2,128,311	1,657,024	1,292,132	1,164,501
Rhode Island ..	298,486	274,491	187,354	178,344
Connecticut ..	1,642,188	1,379,419	1,064,525	988,252
Total ..	13,148,466	10,738,930	8,134,403	7,254,904

In the six States enumerated the farming acreage has, in the course of thirty years, been reduced by 5,000,000 acres, or by almost 40 per cent. A similar reduction in the acreage of farms has taken place in the States of New York, New Jersey, Pennsylvania, Ohio, Iowa, Delaware, Maryland, Virginia and California.

Owing to the frequent disregard of rotation and the neglect of manuring, the American soil yields comparatively little. According to the Report of the Conservation Committee, American and European yields of wheat compare as follows —

AVERAGE YIELD OF WHEAT PER ACRE, 1897-1906.

United Kingdom	32·2 bushels per acre.
Germany	28·0 ,, ,,
France	19·8 ,, ,,
Austria	17·8 ,, ,,
Hungary	17·6 ,, ,,
United States	13·8 ,, ,,

The virgin soil of the United States yields per acre only between one-half and one-third as much as is yielded by the inferior, but carefully cultivated, soil of Great Britain and Germany. It is obvious that the most careful and the most thrifty cultivation—which, of course, is difficult in a country where distances are great, land is abundant, and labour dear—would make unnecessary the abandonment of American farms, and would at the same time double and treble the productivity of the soil.

It is a well-known fact that waterless deserts reclaimed by irrigation and swamp lands reclaimed by drainage possess the greatest fertility. The United States have already more than 13,000,000 acres of irrigated land. The most prolific agricultural and fruit-growing districts in California and Utah were once waterless deserts. According to the Statistical Abstract of the United States, the Great Republic contains 74,541,700 acres of swamp lands and 44,375,300 acres of irrigable land in the arid region, or, together, 118,916,000 acres which await reclamation. We can safely estimate that at least 70,000,000 acres of swamps and arid land can profitably be converted into farms, meadows, and orchards. As the total area of the United Kingdom is 77,721,256 acres, an area as large as the United Kingdom can apparently be reclaimed at comparatively trifling cost. In 1909 the United States had 44,262,592 acres under wheat and 32,043,838 acres under cotton. The United States can, by reclamation alone, double their wheat and cotton area, and they can double the output per acre by a more intensive cultivation. The Report of the Conservation Commission stated:

> The area of land cultivated may possibly be doubled. In addition to the land awaiting the plough, 75,000,000 acres of swamp land can be reclaimed, 40,000,000 acres of desert land irrigated, and millions of acres of brush and wooded land cleared.
>
> Proper management will double our average yield per acre. The United States can grow the farm products needed by a population more than three times as great as our country now contains.

The harvests of the United States are greatly diminished by the ravages of vermin, which destroy at least £200,000,000 worth of food per year. The United States Bureau of Entomology estimated that the annual damage by noxious insects to growing crops, fruit-trees, and to grain in storage is no less than $659,000,000, or £131,000,000, a sum equal in value to the entire yearly production of the greatest British industry, the cotton trade. The average yearly loss of animal products from flies, ticks and other insects is officially estimated at $267,000,000, or £53,400,000, a sum larger than that which before the War Germany spent every year on her enormous army. This sum does not include the enormous loss of human life and the cost of disease due to house-flies, mosquitoes, fleas and other germ-carrying insects, a loss much greater than that suffered by the live stock and its products. The Biological Survey of the Department of Agriculture estimated that the damage to live stock and crops by wolves, rats, mice, and other mammals averages over $100,000,000, or £20,000,000 per year, a sum about as large as that which before the War was spent every year on the German Navy. The destructive activity of vermin, which in many parts of the United States is extraordinarily great, can no doubt be diminished by appropriate co-operative action.

The forests of the United States have been exploited in the most improvident manner. Farmers usually begin operations by clearing the forest, by burning off the trees as if they were worthless; and as forest fires cannot always be controlled, they often destroy many miles of forest against their will. Mr. W. B. Greely, of the United States Forest Service, reported. "Of the total area of improved farms in 1907, not less than 65 per cent., or 290,000,000 acres (an area four times as large as the whole of the United Kingdom), have been drawn from the original forests of the country." Much timber has been wasted by forest fires caused by carelessness, and much has been destroyed by overtapping trees for turpentine, by the clumsy cutting and removal of trees, etc., and the result is that only one-third of the timber cut has actually been used, while two-thirds have been wasted. In forestry, as in agriculture, the United States have been drawing heavily on their capital. They have been using far more than they have restored to Nature owing to preventable waste, and the result of their wastefulness is that wood and timber, which used to be cheap and plentiful, have lately been scarce and dear. It is clear that by wise management the United States could greatly reduce the destruction of timber, and greatly increase its production to their great advantage. The Report of the Conservation Commission stated:

> . . . Since 1870 forest fires have destroyed a yearly average of fifty lives and $50,000,000 worth of timber. Not less than 50,000,000 acres of forest is burned over yearly. The young growth destroyed by fire is worth far more than the merchantable timber burned.
>
> One-fourth of the standing timber is lost in logging. The boxing of long-leaf pine for turpentine has destroyed one-fifth of the forests worked. The loss in the mill is from one-third to two-thirds of the timber sawed. The loss of mill product in seasoning and fitting for use is from one-seventh to one-fourth.
>
> Of each 1,000 feet which stood in the forest, an average of only 320 feet of lumber is used.
>
> We take from our forests each year, not counting the loss by fire, three and a half times their yearly growth. We take 40 cubic feet per acre for each 12 cubic feet grown; we take 260 feet per capita, while Germany used 37 and France 25 cubic feet.
>
> We can practically stop forest fires at a cost yearly of one-fifth the value of the merchantable timber burned.
>
> Under right management our forests will yield over four times as much as now.
>
> Against an average yearly growth of 12 cubic feet per acre in the United States, the forests in Germany, all of which are rightly handled, yield each year 48 cubic feet per acre, and their most common trees do not grow naturally as fast as ours. It is certain that the average annual yield of forests in this country can be made, through protection from fire and through conservative logging, much larger than that of the forests in Germany.
>
> Every owner of forest lands can stop fires and log conservatively with immediate profit, as well as with permanent profit.
>
> Most other countries have already learned that the forests which are not conserved will be used up, and they are taking care of what they have. We are among the last to learn it. We can profit by that knowledge if we will. But if we will it means action, united, vigorous and prompt, by State and nation.

The warnings and recommendations of the Conservation Committee have borne fruit. By suitable legislation much of the waste of timber has been stopped. Forest planting is taking place in many parts of the Union, and by means of watch-towers with telephonic or wireless connection forest fires are now being rapidly detected and promptly stopped.

There are in the United States 26,410 miles of navigable waterways. According to the Report of the Conservation Committee the length of navigable waterways can be doubled by regulating the streams. In the United States transport by river costs only about one-third as much as transport by railway. Yet, except in a few instances, the great rivers are devoid of traffic. Even the Mississippi, the greatest commercial waterway in the world, is scarcely used for transportation. The waterways of the United States have remained practically unutilised, partly owing to the lack of planful land and river regulation, partly owing to the hostility of the railways, which, like the British railways, have endeavoured to monopolise the carrying trade. The American rivers are a great natural resource which at present is largely wasted.

In consequence of the destruction of necessary forests and of the absence of river regulation, a large part of the most fruitful soil of the United States is washed into the streams and carried by them into the ocean. The Conservation Commission Report stated:

> The direct yearly damage of floods since 1900 has increased steadily from $45,000,000 to over $238,000,000. The indirect loss through depreciation of property is great, while a large loss arises in impeded traffic through navigation and terminal transfers.
>
> The freshets are attended by destructive soil erosion. The soil matter annually carried into lower rivers and harbours, or into the sea, is computed at 783,000,000

tons. Soil wash reduces by 10 or 20 per cent. the productivity of upland farms, and increases channel-cutting and bar-building in the rivers.

Hitherto river regulation and correction has often been effected rather for party-political than for national and economic purposes. Hundreds of millions have been wasted on purely political river jobs.

The owners of mines, petroleum, natural gas and other minerals, also have, to a large extent, followed the policy of economic vandalism to the harm of posterity, but they will not much longer be allowed to waste and destroy resources which will be necessary to future generations. State and national legislation is insisting upon the provident exploitation of the natural wealth.

The Americans are apt to treat their game and fish as they treat their agricultural soil and their forests. They have an inclination not to utilise their enormous resources of game and fish, but to exhaust them completely. In this direction also the policy of conservation has proved highly beneficial.

The majority of American houses are built of wood, and their roofs are made of wooden "shingles." Fires are frequent in the United States, for the people are naturally careless and insurance is general. The Report of the Conservation Committee stated:

A notable fact in the analysis of fire losses is that 27 per cent. were caused through the fire extending beyond the building in which it originated. The extension of fires results from the use of inflammable material in construction. It is even more notable that only $68,000,000 of the loss was on brick, concrete, stone and other slow-burning construction, while over double that amount, or about $148,000,000, was on wooden-frame buildings. In the last thirty-three years the total fire waste amounted in value of property destroyed to over $4,500,000,000.

According to the United States Insurance Year-Book, the fire losses come on an average to $200,000,000, or to £40,000,000, per year. The United States waste every year on preventable fires as much as, before the War, Great Britain spent on her Navy, and during the last thirty-five years she has lost by preventable fires property valued at £900,000,000. Here also improvement is gradually being brought about by the teachings of the Conservation Commissions, which have powerfully influenced public opinion.

In the past the American people have exploited their natural resources without a thought for the morrow. They believed that their natural resources were not merely the largest in the world, but that they were practically inexhaustible. However, they have become painfully aware, through a rise in the price of American food, and of the raw materials of their own production, that their great natural resources are rapidly diminishing. Hence they have, with their customary energy, created a movement for husbanding and developing their natural resources, and for restraining the individuals in possession from destroying for their personal profit resources which should be a common heritage for all time. Americans are, above all, practical men possessed of an open mind. Without inquiring too closely whether their action is individualistic or socialistic, whether it meets with the approval or disapproval of political philosophers, political economists, and other doctrinaires who do not matter, they have unceremoniously thrown overboard their old policy of *laissez faire* in these matters, and have introduced the German policy of economic supervision and control by the State, and the policy of State management and State ownership. In future the United States will look rather after the benefit of the people as a whole, and especially after the welfare of the "home-makers," in the name of patriotism, than after the advantage of enterprising capitalists and speculators in the name of economic orthodoxy and of unrestrained individualism, which often is merely a misnomer for unrestrained mammonism. The Conservation Commission has formulated its land policy as follows:

> Good business sense demands that a definite land policy be formulated. The National Conservation Commission believes that the following will serve as a basis therefor:
>
> 1. Every part of the public lands should be devoted to the use which will best subserve the interests of the whole people.
> 2. The classification of all public lands is necessary for their administration in the interests of the people.
> 3. The timber, the minerals, and the surface of the public lands should be disposed of separately.
> 4. Public lands more valuable for conserving water-supply, timber and natural beauties or wonders than for agriculture should be held for the use of the people from all except mineral entry.
> 5. Title to the surface of the remaining non-mineral public lands should be granted only to actual home-makers.
> 6. Pending the transfer of title to the remaining public lands, they should be administered by the Government, and their use should be allowed in a way to prevent, or control, waste and monopoly.

The Conservation movement in the United States should be of the greatest interest and of the greatest value to the British nation. It should furnish it with an invaluable precedent. The British people have in their Dominions and Colonies by far the greatest estate in the world. The natural resources of the British Empire are infinitely greater than those of the United States. National power is based upon national wealth. Production, wealth, population, economic policy, will decide whether the United States or the British Empire will become the leading Anglo-Saxon Power. In the name of non-interference, individualism and *laissez faire*, Great Britain, and the other British States as well, have wasted a large part of their natural resources. The British people have allowed the forests of the United Kingdom and part of its agriculture to be destroyed, to the harm of the many and the profit of the few. The rural industries of England might produce three times as much food as they do produce. The erosion of the coasts of the British Isles continues unchecked, swamps are not drained, wastes are not reafforested, the canal system is not recreated, and coal is exploited without a thought of the future, although the time will come when Great Britain will be as poor in coal as she now is in timber. Great Britain is destroying her natural resources, although there will come a day of reckoning.

The future of the United States and of the British Empire depends upon the wise utilisation and the preservation of the natural resources. The future of the Anglo-Saxon race depends to a large extent upon its economic policy in the widest sense of the word. An inventory of the resources of the British Empire and an Imperial Conservation movement is required. The conservation of the Imperial natural resources is well worthy a special Imperial Conference. The undiminished possession of the vast natural resources of the British Empire must be safeguarded to future generations of the Anglo-Saxon race.

CHAPTER XVI

THE ECONOMIC POSITION AND FUTURE OF RUSSIA

The future development of Russia and of Russo-German relations is a matter of supreme importance to the nations of Europe and of the world

Modern Germany, Prusso-Germany, was, rightly considered, not a Central European, but an East European Power It was reared on Slavonic soil and its greatness was based rather on Slavonic than on German strength. During historic times the Germans occupied the territory between the Rhine and the Elbe East of the Elbe dwelled the Slavs. At an early date the Germans began to expand eastward Adventurous leaders crossed the border, and created settlements and colonies among the heathen Slavs east of the Elbe Prussia proper lies east of that great river in the old Slavonic sphere Brandenburg, Silesia, Pomerania, Mecklenburg, and East Prussia, which form the nucleus of the kingdom of Prussia, were originally purely Slavonic lands.

The Suabian family of the Hohenzollerns ruled with the help of a feudal nobility, which had migrated from Germany proper, over masses of people which, apart from German immigrants, were non-Germans, were aliens in race and in speech, were Slavs The Prussian Slavs were ruled with a hand of iron They were treated as serfs, and were forced to fight against their brother-Slavs for the benefit of their German masters Prussian absolutism arose owing to the fact that the rulers of the country were able to treat the native inhabitants as a conquered and inferior race

In course of time the Slavonic people of Prussia proper became outwardly Germanised However, they retained their Slavonic humility and submissiveness. Prussia owed its greatness to the fact that its German rulers could, with the help of their German feudal retainers, who later on were replaced by officials, organise, arm, and drill the servile and largely alien population, which furnished the most excellent food for cannon. For centuries the Prussian sword has been wielded largely, and perhaps chiefly, by Slavonic hands under the direction of German rulers and officers.

Prusso-Germany has been defeated, but the Germans may wish to take up once more their career of conquest and of expansion, whereby they have grown great in the past As they cannot easily expand towards the west and south, they may endeavour to expand towards the east They may endeavour to increase their power and wealth once more with the help of the Slavonic peoples and at the cost of the Slavs.

The great distinguishing trait of the Northern and Eastern Slavs is their submissiveness While the Southern and Western Slavs, the Poles, the Serbians, and the Czechs, have in the past displayed a strong love of freedom and independence, and have fought with the utmost determination against foreign conquerors and foreign influences, the Russian Slavs have readily submitted to alien rule. Patient submissiveness, an absolutely Oriental fatalism, and a dreamy, indolent passivity, are preached as virtues by countless Russian poets, novelists, and moralists. These qualities are perhaps the most striking characteristic of the Russian race The Russians lived under the yoke of the Normans, the Varagi, from 862 to 1054, under their own Princes from 1054 to 1238, and under the Mongol horror from 1240 to 1462 Since then they have equally patiently submitted to the tyranny of alien rulers—of the Ruriks and of the Romanoffs, of the Holstein-Gottorps and of the Bolsheviks Men of such pliability form ideal material in the hands of a race of ambitious, energetic, and ruthless organisers and conquerors.

Influential political thinkers and writers in Germany have advocated for many years that Germany should divide Russia against herself, bring the various portions under German domination, and make, in course of time, the whole country a gigantic German protectorate and colony. That idea dictated the stipulations of the peace of Brest-Litovsk, whereby the newly created Russian border States in the west, with a population of more than 60,000,000, were given a sham independence under the German Government, were made German protectorates. The absorption of these border States by a victorious Germany which had already begun would in course of time probably have been followed by that of the remaining parts of Russia as well Exactly as in previous centuries a Greater Prussia had been built up on a broad Slavonic foundation, even so a Greater Germany might have been created which, in course of time, would have extended from the French frontier to Vladivostok and to the Behring Strait, and from the Arctic Circle to the borders of India and China. Countless German publications which were issued during the War recommended the gradual absorption of all Russia Compared with such an Empire, the projected Central European Federation, dominated by Germany and extending deeply into Asia Minor and Africa, would have seemed an unimportant creation.

In view of Prusso-Germany's tradition of conquest based upon the exploitation of Slavonic man-power and Slavonic stolid submissiveness, and in view of the fact that the Russian Slavs have readily and cheerfully submitted to alien rule in the past, it is worth while considering in some detail the possibility and consequences of Russia drawing, or being drawn, towards Germany, of Russia becoming a German preserve and a German possession.

Germany lost the War owing to military defeat and owing to the effect of the blockade She lost the War owing to an insufficiency of man power and an insufficient supply of indispensable raw materials and of food Russia can supply Germany with all the soldiers, food, and raw materials which her most ambitious soldiers may wish for in their wildest dreams The vastness of Russia and of her resources and possibilities are realised only by the few. The size of the country may be gauged from the following figures, which are taken from the British Statistical Abstract for Foreign Countries:

	Square Miles.
Total Russian Empire in 1914	7,889,459
European Russia only in 1914 . .	1,909,519
China	3,924.837
Brazil	3,290,564
United States proper	2,973,890
German Empire in 1914	208,770

The Russian Empire as it existed in 1914 was by far the largest connected State in the world. All Russia was forty times as large, and European Russia alone ten times as large, as the German Empire According to other authorities, the British official figures give an understatement of Russia's area Baron A Heyking, the former Russian Consul-General in England, wrote in his book *Problems Confronting Russia:*

> Extending over half of the Continent of Europe and a third of Asia, Russia comprised before the War a continuous area of not less than 8,760,000 square miles. This area stretched over 163 geographical degrees from west to east, and over 35 degrees from north to south. Russia is larger than the United States, Canada, and India com-

bined; she is more than twice the size of the whole Continent of Europe Her population of 186 million inhabitants is equal to that of the whole of the American continent (North and South) and Australia taken together, or that of the combined population of the United Kingdom, France, Japan, and Italy It exceeds the aggregate black and white population of Africa; also that of the United States and Germany taken together

The widely held belief that Russia is a cold and barren country situated in the extreme north is erroneous. Russia, like the United States, comprises nearly all climes except the torrid Moscow and Riga in the north lie in the same latitude as Glasgow and Copenhagen, Kiev and Charkoff in the centre are no farther north than Frankfurt-on-the-Main and the Isle of Wight, Odessa and Rostoff lie in the same latitude as Venice and Lyons; the Southern Crimea in the same latitude as the Italian Riviera, Tiflis, Khiva, and Bakou, are in the same latitude as Constantinople, Naples, Lisbon, and Washington; Southern Turkistan in the same latitude as Southern Italy, Athens, Tunis, and Los Angeles.

Not so very long ago the population of France greatly exceeded that of Russia The vastness of Russia and of its resources has enabled the population to increase at an extraordinary speed as follows:

Year.	*Population.*
1762	19,000,000
1796	36,000,000
1815	45,000,000
1835	60,000,000
1859	74,000,000
1897	129,209,297
1913	174,099,600

The strength, wealth, and populousness of a State depend on its natural resources, by the exploitation of which men live and multiply. Russia suffers from the fact that a large part of the country lies in the unhospitable north However, that disadvantage is compensated for by great natural advantages The great bulk of Russia is a gigantic, monotonous plain, which is intercepted by a few mountain chains. As agriculture requires level ground, it is exceedingly favourably situated for the pursuit of the rural industries

A huge inland country requires opening up by railways and waterways, and the latter afford a cheaper means of transport than the former Russia is an ideal country for the development of inland transport by land and water The level country makes railway construction and transport relatively cheap, and Russia's system of natural waterways is unequalled in the world Russia is the land of huge rivers which flow gently, almost without a gradient, towards the sea Of the principal rivers, the Volga is 2,325 miles long, the Dnieper 1,410 miles long, and the Don 1,325 miles long, while the Rhine measures only 850 miles and the Thames only 209 miles The basin drained by the Volga alone comprises 563,000 miles, an area five times as large as the whole of the United Kingdom, the Dnieper system drains 202,140 miles, and the Don system 166,000 square miles Russia has 153,782 miles of rivers, canals, and lakes, a mileage which is four times as great as that of the railways of India Of these waterways, 20,670 miles are navigable for steamers, 7,482 miles for small sailing vessels, and 88,739 miles for rafts

The capacity of Russia's river craft exceeded in 1906 13,000,000 tons, a tonnage which vastly exceeded that of the German merchant marine in 1914 From the centre of European Russia, from a plateau which is situated only a few hundred feet above the level of the sea, the great Russian rivers flow gently towards the south, west, north, and east They have been connected by canals Consequently one can travel by water from one part of the

Empire to almost any other part. Owing to the fact that all European Russia is a plain, and that the river and canal system can be vastly improved at comparatively small expense, natural conditions favour the development of inland transport in Russia as in few other countries. In a few decades Russia might conceivably have the finest system of railways and of inland waterways in the world, and might cease to be an ice bound country during the long winter

Northern Russia is bitterly cold, but it is by no means valueless In the great northern belt of European and Asiatic Russia are to be found by far the largest and the wealthiest forests in the world. Much of that land has not yet been touched by the axe, and has not even been surveyed Its exploitation requires the provision of those transport facilities which as yet are lacking Russia has an inexhaustible store of pine, fir, cedar, larch, birch, oak, elm, beech, etc In European Russia alone there are 550,000,000 acres of forests, an area which is seven times as large as that of the United Kingdom Before the War Russia's exports of timber ranged immediately after her grain exports, and half of the timber imported by Great Britain came from Russia By means of her forests Russia may obtain not only the largest timber and woodworking industries in the world, but the largest papermaking industry as well.

In the intermediate belt Russia produces gigantic quantities of wheat, rye, oats, barley, beetroot, mangold, rape, hemp, flax, apples, pears, plums, cherries, etc., and in the southern territories she raises an abundance of maize, rice, cotton, jute, tobacco, tea, almonds, pistachios, pomegranates, oranges, mandarins, apricots, peaches, and grapes, large quantities of which are converted into still and sparkling wines.

Russia's food-production per acre is exceedingly low, because the great majority of the peasants merely scratch the ground with light implements, and scientific manuring, etc., is little known. Germany, Belgium, and Great Britain produce per acre about three times as much cereals, potatoes, and vegetables as does Russia. Consequently Russia's production could be doubled and trebled, without extending her agricultural area, merely by improving the methods of cultivation. Notwithstanding her primitive agricultural methods, Russia produces, according to Baron Heyking, 51 per cent. of the world's rye, 25 per cent. of the world's oats, 33 per cent. of the world's barley, 22 per cent. of the world's wheat, etc. As all of Russia is a gigantic plain which, but for the intersection of the Ural and Altai Mountains, stretches from the German frontier to the Pacific Ocean, the country may, and in course of time should, become by far the largest agricultural producer and exporter in the world. Compared with Russia's agricultural possibilities, those of the United States, Canada, and Argentine, appear small.

Notwithstanding the backwardness of her rural industries, Russia had in 1913 33,863,000 horses, 51,355,000 cattle, 73,962,000 sheep, and 14,232,000 pigs. She was far ahead of the United States both in horses and in sheep, and had almost as many head of cattle, but was far inferior to the United States in pigs. By opening up the country by means of roads and railways and by improving her agricultural processes, Russia can increase indefinitely her production of food and of animals of every kind.

In some directions Russian agricultural production has advanced most remarkably, as the following figures, which are taken from the French Annuaire Statistique, show:

HARVEST OF EUROPEAN RUSSIA ONLY, WITHOUT POLAND.

Year	*Wheat*	*Oats*	*Potatoes.*
	Hectolitres	*Hectolitres.*	*Hectolitres.*
1893	130,400,000	228,300,000	204,150,000
1898	142,500,000	186,600,000	241,700 000
1903	199,600,000	270,900,000	262,300,000
1908	171,100,000	241,200,000	262,900,000
1913	303,900,000	296 000,000	336,200,000

Year	*Horses*	*Cattle.*
1870	15,611,000	21,409,000
1880	20,016,000	23,845,000
1890	19,663,000	24,609,000
1900	19,682,000	32,913,000
1910	20,961,000	31,473,000

The figures given show a remarkable expansion, which promises well for Russia's agricultural future Particularly remarkable is the advance made by Russia in the production of beet sugar and of cotton. In the production of the former she seems likely to overtake Germany, and in that of the latter she has rapidly overtaken that of Egypt, as appears from the following tables, which are taken from the British Statistical Abstract:

BEET-SUGAR PRODUCTION IN TONS.

Year	*In Germany.*	*In Russia.*
1897-98	1,814,758	744,159
1902-03	2,265.246	1,020,953
1907-08	2,104,358	1,522,384
1910-11	2,548,246	1.888,806
1913-14	2,738,000	1,750,000

COTTON-PRODUCTION IN BALES.

Year	*In Egypt.*	*In Asiatic Russia*
1902	1,262,000	426,000
1905	1,251,000	612,000
1908	1,433,000	1,069,000
1901	991,000	1,974,000

Russia's tobacco-production is very large. Her acreage under that plant is the second in the world.

The vast inland waters of Russia, especially the Caspian region, abound in fish.

The widely held belief that Russia is naturally poor in minerals is erroneous. Although the gigantic country has not yet been adequately surveyed and explored, vast mineral deposits have been found. Russia is rich in coal, iron ore, manganese, copper, gold, platinum, asbestos, salt, naphtha, and many other minerals. The coal and iron resources of Russia compare as follows with those of the United Kingdom according to the Reports placed before the International Geological Congresses held in Canada in 1913 and in Stockholm in 1910:

Coal		*Metallic Iron contained in Iron Ore.*	
	Tons.		*Tons.*
European Russia and Siberia ..	233 985,000,000	European Russia only	387,200,000
United Kingdom	189,535,000,000	United Kingdom	455,000,000

As prospecting for minerals has scarcely begun, the mineral discoveries of the future may far exceed those of the past.

In spite of a clumsy legislation, a wretched Administration, a bad inland transport system, and other hampering circumstances, Russia's mineral production has rapidly increased as follows:

PRODUCTION OF –

Year	*Coal*	*Iron Ore*	*Copper*	*Zinc.*
	Tons	*Tons.*	*Tons*	*Tons*
1883	3,980,000	998,000	4,356	4,185
1893	6,922,000	1,958,000	5,348	4,522
1903	16,868,000	4,152,000	8 922	9,737
1913	33,150,000	8,200,000	33,695	11,600

Year	*Gold*	*Platinum*	*Naphtha*	*Salt.*
	Kilos	*Kilos*	*Tons*	*Tons*
1883	35,734	3.536	989,000	1,138,000
1893	44,804	5,094	5,434,000	1.337,000
1903	41,200	5,911	9,624,000	1,645,000
1913	60 847	4,898	9,193,000	1,906,000

During the thirty years under consideration the production of coal, iron ore, and copper, has increased about eightfold, that of zinc threefold, and that of gold and salt has nearly doubled Russia has practically a monopoly in platinum, the most valuable of metals She produces about one-fourth as much gold as South Africa. She is the second largest producer of mineral oil, and her production of copper promises soon to exceed that of Germany and even that of Spain

Those Russian industries which employ minerals have rapidly progressed, as the following examples show.

In 1913 Russia's production of steel exceeded that of France. The mineral and industrial possibilities of

Russia are possibly as great as her agricultural and forestral ones.

PRODUCTION OF—

Year.	Pig Iron.	Iron and Steel.
	Tons.	Tons.
1883	482,000	578 000
1893	1,029,000	793 000
1903	2,488,000	2,226,000
1913	4,600,000	4,015,000

Mineralogically, as agriculturally, the soil of Russia has been merely scratched. An incapable and corrupt Administration has kept back the development of the great national resources. The opening up of the country by the provision of adequate roads, railways, and waterways, and the introduction of better methods of production in agriculture, mining, and manufacturing, should vastly increase the wealth of the nation. During the last hundred years Russia's population has been exactly quadrupled. The increase of men depends on the increase in the production of those goods which afford them a living There is no reason to doubt that Russia's population may increase fourfold during the next hundred years if the great latent resources of the country are adequately utilised. It is perfectly possible that in the year 2020 Russia within the limits of 1914 will have a population of more than 700,000,000. It follows that the acquisition of that country in some form or other would enable Germany to dominate the world militarily, financially, and industrially.

Russia's most urgent need is probably the opening up of the country by railways and waterways, and by roads which act as feeders to both She is very poorly provided with roads and railroads The area of Russia is nearly three times as great as that of the United States proper; yet the mileage of railways is five times as great in the United States as in Russia. Gigantic Siberia, which is twice as large as the United States, has only a single railway-line Along that railway there are settlements of men All the rest of the huge country is a wilderness. The building of a sufficiency of railways would vastly benefit not only Russia's agriculture, forestry, mining, and her industries in general, but particularly those industries, Russian or non-Russian, which have to provide the millions of tons of rails and the rolling stock, etc., which are required. The growth of the Russian railway system in the past gives one an idea of its possible development in the future. The mileage of the railways of European Russia has increased as follows:

Year.	*Kilometres.*
1860	4,591
1870	11,236
1880	23,524
1890	30,940
1900	48,107
1910	59,559
1912	61,861

Russia is by far the largest connected State in the world Her forestal, agricultural, mineral, and industrial potentialities are absolutely unlimited. Russia might become the foremost State in the world in population, in agricultural, mineral, and industrial production, and in wealth Her exports of agricultural products, minerals, and manufactures, might exceed those of the United States Russia might become not only the wealthiest and the most populous country in the world, but also the most powerful, for military power is based on population and wealth Hence its acquisition in one form or another is bound to appear most alluring to all Germans who have the greatness of their country at heart, who have been brought up in the tradition of conquest, and who desire to resume their triumphant expansion of their country. The military men of Germany are bound to see in Russia an inexhaustible reservoir of men and of horses, of food, and of those raw materials, such as leather, cotton, copper, etc., which densely populated Germany would require in case of war. The German business men must be equally tempted to attach Russia to Germany in some way, for they are bound to see in that country an inexhaustible source of wealth for themselves and for their workers. The German business men, while developing Russia to the great advantage of the native inhabitants, might secure the principal benefit for their own countrymen. The German officials and the German intellectuals, professors, professional men, etc., might enrich themselves by lifting up the Russians. The building and equipping of 200,000 miles of railway alone would ensure the unbounded prosperity of the German iron and steel industry and of the industries connected with it for decades. By skilful and tactful management the bulk of Russia's wealth might peacefully be transferred to Germany. Almost unnoticed, Russia might become a German protectorate.

The Germans, and especially the Prussians, have seen for centuries in Russia a German colony. Centuries ago, when Poland was a powerful and wealthy military State, Russia had not yet become an Empire and Prussia had not yet become a kingdom. Both were weak and poor, and both feared the Poles. The Grand Masters of the Teutonic Order which ruled Prussia felt threatened by Poland. They sought protection against the Poles. In the sixteenth century they approached the Grand Dukes of Muscovy and solicited their help against Poland, although they looked down upon the Russians and considered them barbarians. Thus the intimate relations between Russia and Prussia began, and ever since the Germans, and especially the Prussians, have seen in the Russians savages who should be flattered and be made useful and be exploited.

Russia was in the past in all essentials an Asiatic country. Peter the Great tried to Europeanise it and to provide it with a European army, fleet, diplomatic service, administration, etc He required the assistance of skilled European experts Not unnaturally, he turned to his German neighbours, and his successors followed his example They did so all the more readily as, since the time of Peter the Great, it became the settled custom of the Russian monarchs to seek their consorts in Germany. It is a remarkable fact that all the successors of Peter the Great, with one single exception, have entered upon German matrimonial alliances, as the following table shows

Alexis, son of Peter the Great—Princess Charlotte of Brunswick.
Empress Anna—Duke Charles Frederick of Holstein-Gottorp
Empress Elizabeth—not married.
Peter III.—Catherine (the Great) of Anhalt-Zerbst.
Paul—Princess Natalie of Hesse-Darmstadt, and, in second marriage, Princess Marie of Würtemberg.
Alexander I.—Princess Elisabeth of Baden.
Nicholas I.—Princess Alexandra, the daughter of King William III of Prussia
Alexander II.—Princess Marie of Hesse-Darmstadt.
Alexander III.—Princess Dagmar of Denmark.
Nicholas II.—Princess Alexandra Alix of Hesse-Darmstadt.

By the constant intermarriage of Russian rulers with German consorts the Russian blood in them was constantly weakened. The House of Romanoff was replaced by the House of Holstein-Gottorp, and by constant infusions of German blood the Russian family became more and more German from generation to generation. The members of the Imperial family and the aristocracy not unnaturally followed the example set to them from above, and the Germanised Court became surrounded with German courtiers, German advisers, and German friends, and the children of the Imperial family and of the nobility were handed over to German governesses, German teachers, and German companions The Imperial Court and the leading families of Russia lived rather in a German than in a Russian atmosphere, even if they spoke Russian or French among themselves.

Since the time of Peter the Great men of German race influenced or directed the activities of the country These men came partly from Germany proper, and especially from Prussia, partly from the Baltic provinces which Russia had won by conquests In the Baltic provinces the German barons owned the land and the native Slavs tilled it for their masters Many of the Baltic Germans became faithful Russian subjects Still, they maintained their connection with Germany, spoke German among themselves, intermarried with Germans from Germany, and considered themselves rather Germans than Russians.

Surprisingly large numbers of the most eminent Russians bear German names, and are Germans by descent. However, the proportion of Germans who have risen to eminence in Russia is probably greater than would appear from a cursory examination of Russian history Many eminent Germans in Russia have Russianised their names; others have Polonised them, and others, again, have assumed a French appearance For instance, von Plehve is generally known as de Plehve, von Benckendorff as de Benckendorff, etc. Let us briefly examine the influence of the Germans in the direction of Russian affairs since the time of Peter the Great

During the reign of Peter the Great some of the most eminent men were Germans. Among his leading Generals were Field-Marshal Baron Rönne, who won the Battle of Poltava, Field Marshal Münich, Field-Marshal Lacy, and Count Ostermann, the leading Russian diplomat and administrator of his time During the reign of Empress Anna the Germans ruled Russia under the direction of her favourite Biron (whose real name was Büren), his brothers, the brothers Löwenwolde, General Bismarck, Albedyll, and others Among the leading Generals during the wars with Napoleon were Field-Marshals Barclay de Tolly, Osten-Sacken, Wittgenstein, and Diebitsch, and Generals Bennigsen, Phull, and Toll During the Crimean War we meet with many German Generals, among them Field-Marshal Berg and General Todleben, the defender of Sevastopol

Men of German birth and descent who came either from Germany or from the Baltic provinces of Russia have had a strong hold upon the army up to recent times Of the three armies of Manchuria during the Russo-Japanese War, two were commanded by men of German name, Generals Bilderling and Kaulbars, and Port Arthur was defended by General Stoessel Among the other Generals bearing German names who commanded during that war were the following: Stakelberg, Gripenberg, Keller, Rennenkampf, Gerngross, Gruber, Meyendorf, Rediger, Gerschelmann, Guppenberg, Hanenfeld, Dekinlein, von den Brinken, Krause, Witte, Fleischer, Webel, Rebinder, von Baumgarten, Ecke, Guenichte, Fock Among the most prominent naval commanders were Admirals Stark, Jesse, Essen, Witgeft, and Virenius

During the Great War many of the German commanders disappeared, but before its outbreak German influence had been extremely strong in the highest positions. Of the twenty-seven Army Corps in Russia proper, no less than ten were commanded in 1912 by men bearing German names. They were the following.

Grenadier Corps ..	General	Eck
2nd Army Corps ..	,,	Adlerberg
3rd ,,	,,	Rennenkampf
6th ,,	,,	Schwank
10th ,,	,,	Sievers
13th ,,	,,	Evert
16th ,,	,,	Geismann.
18th ,,	,,	Krusenstern
23rd ,,	,,	Rausch de Traubenberg.
24th ,,		Gerngross

In the Diplomatic Service men bearing German names were as prominent as they were in the army. Count Nesselrode was Minister of Foreign Affairs during forty years from 1816 to 1856. Among the Cabinet Ministers of recent times were von Plehve, Sievers, Korff, Reutern, Budberg, Bunge, Lamsdorff, Witte, Zaenger, Schwartz, Bark, Roediger, Langhoff, Fredericks, Stuermer. The Russian Ambassador in London was Count de Benckendorff, and at one time his Counsellor of Embassy was von Grävenitz, and the Russian Consul-General was Baron Ungern-Sternberg.

The influence of men with German names at the Russian Court was very great. The principal adviser of the Czar was the Minister of the Imperial Household, Baron Fredericks, and among the members of the Czar's Maison Militaire were Baron Meyendorff, Baron Fredericks I., Baron Fredericks II., and Generals Gripenberg, Grünwald, Benckendorff, Budberg, Feldmann, Roop, Keller, Kaufmann, Wolf, Heyden, Mengden.

The Russian Council of Empire, or Senate, was composed of 196 members. Among these were, before the War, the following gentlemen bearing German names: Pahlen, Rohrberg, Roop, Schreiber, Witte, Fredericks, Frese, Wahl, Schewitch, Sabler, Unterberger, Müller-Zakomelsky Rödiger, Hoyningen-Huene, Kaufman, Korff, Schmeman, Schwartz, Schlippe. Schafhausen-Schonberg-Eck-Schaufus Toll, von Stürmer. Budberg. Lieven. Deutsch

Men of German names were as prominent in society and among the professional men as they were in the army, in the Diplomatic Service, and at Court Among the professors at Petrograd University there were in 1912 Messrs Braun, Wolter. Kahl. Rosenfeld, Fridolin. Frank. Bettak, von Glasenapp, Borgmann, Karl Schmidt. Henkel, Richter, Lewinsen-Lessing, Günther Petr Schmidt. Wagner, Schlater, Friesendorf. Schulz, Busch. Berg von Weimarn, I I Kaufmann. Grimm, Gorenberg. Hessen, Heine. Kulischer. Schvittau, von Reusner. Kaufmann, Mandelstam, Bartold. Salemann, Alexander Schmidt. von Holstein.

It is often asserted that 2,000,000 Germans live in Russia The majority of these are tradesmen, agriculturists, artisans, etc. However, their influence was small compared with the few thousands who occupied some of the most eminent positions in the State. In 1843 there was published in London a book, *Russia and the Russians in 1842*, by J G. Kohl It was translated from the German We read in it

> Setting aside the influence established in Russia in very early ages by the Varagian-Germanic races, and subsequently by the Hanseatic merchants, the importance enjoyed by the Germans may be dated from the reign of Ivan Wassiliewitsch, who not only transported many German prisoners of war from Livonia into the interior of Russia, but likewise favoured emigration from Germany. . . At length the empire included within its confines whole provinces inhabited by Germans Tracts of waste land were peopled with German colonists; and men of learning, statesmen, and military commanders were invited to emigrate from Germany to Russia . .
>
> The development of Russia as a European Power, as exemplified in her rapid advancement since the time of Peter the Great, is mainly attributable to Germany, and has been worked out under German auspices. The organi-

sation of the Russian Army, the improvement of the laws, the custom-house and tax regulations, the ranking of the classes of nobility, even the rules of Court etiquette, all have been transferred from Germany, or partially imitated from German models. . By the Petersburg Court Calendar for the year 1837 it appears that of 600 of the highest posts in the empire, from Ministers and Field-Marshals downward, no fewer than 130 were filled by German names . . In the same year it appears that ten Germans had seats in the Senate, and that of 300 ladies who held Court appointments as ladies of honour, maids of honour, etc , 40 had German family names. In no branch of the public service of Russia is German talent more conspicuous than in the army, and fully one-half of the most distinguished Russian Generals are Germans. . .

Of all branches of intellectual acquirement, science is that which the Germans have made most peculiarly their own Thus it naturally follows that in Russia, where German merit of all kinds is readily acknowledged, German science should be held in special estimation The profound respect entertained by the Russians for German knowledge prompts them to yield the palm to Germans without dispute . . Whenever a German appears, they respectfully bow, and lay aside all pretension

The learned institutions of Russia which enjoy the highest degree of estimation, both at home and abroad, are the University of Dorpat and the Academy of Petersburg. Both are founded on German plans and headed by Germans. In the University of Dorpat, all the professors, with one single exception, are Germans; and in the Academy the most eminent names belong to the same nation In the other five Russian Universities we also find at least some German professors, and in all their most important proceedings German names are distinguished.

The German thinks himself metal of a superior stamp to the Russian, and the latter by every sort of acknowledgment confirms him in that belief. The educated daughter of a German artisan, in the interior of Russia, raises her eyes to orders and epaulets which in Germany would be stars far beyond the reach of her attainment. Nothing is more common than marriages between the families of poor Germans and rich Russians; thus we find many a Herr

Meyer or a Herr Müller whose wife was born Princess G. or Princess K.; and many a Princess X. or Z. who owes her rank to her German father's needle. . . In general, a Russian will trust a German in preference to his brother; and should a Russian have any object of importance or value which he wishes to deposit in safe custody, or should he require the advice of a sincere friend, he will assuredly apply to a German rather than to one of his own countrymen.

Though the whole of the vast Russian Empire, even to its remotest confines, is strongly impregnated with German elements, yet none of its cities is Germanised to such a degree as the capital itself Even the German name of that capital seems to indicate the nation whose people will find themselves most at home there But the Germans have not christened Petersburg only, they have been, moreover, godfathers to most of the new colonies in its neighbourhood—viz., Cronstadt, Peterhof Oranienbaum, Schlusselburg, Katharinenhof, Kronschlott, Riesbank, Insterburg, etc These facts alone satisfactorily explain the influence of the Germans in Petersburg, an influence the extent of which must be obvious when it is recollected that the number of Germans in that capital alone amounts to 40,000 All these Germans may be said to belong to the cultivated classes of society, and as military officers, civil functionaries, merchants, manufacturers, artists, etc., they rank on a footing of equality, and often of superiority, to the Russians in the circles in which they respectively move . Petersburg may be ranked among the German cities of the Baltic

The physicians and apothecaries of Petersburg are all, without exception, Germans According to Reimer's Directory there are among the surgeons of Petersburg no fewer than 40 Russians, and only 30 Germans and other foreigners; whilst of the 120 physicians there were only about a dozen Russians . Petersburg contains a number of Germans who are in the service of the State and in various branches of the Service. in military and civil employments, in the navy and in the army, and in the administrative and legislative departments. The offices of Police-Director and Governor-General of Petersburg have usually been held by Germans.

Up to the War the position of the Germans in Russia was very much as it was at the time described by Mr Kohl. However, in one respect a new development had taken place Until quite recently Russia's foreign trade was very small, and, as railways were lacking, the foreign trade of the country was carried on chiefly by sea from the harbours in the Baltic and in the Black Sea As long as Russia's foreign trade was carried chiefly by ships, Great Britain was Russia's most important purveyor of imports and the principal purchaser of her exports The advent of the railway and German pushfulness changed the course of Russia's trade Owing to her proximity, the development of the Russian railways, and the strong hold which Germans had upon affairs in Russia German business men began to monopolise the direction of Russian economic development The German banks German manufacturers, and German merchants, began to exploit the resources of the country The Germans became at least as prominent in the direction of Russian economic affairs as in the direction of Russian military affairs and of Russian policy. The rapid progress of the German business at the cost of Great Britain can perhaps best be visualised by the figures of Russia's foreign trade, which show the following amazing changes

IMPORTS INTO RUSSIA.

Year	*From Germany.*	*From the United Kingdom*	*Total Imports.*
	Roubles.	*Roubles.*	*Roubles.*
1870 ..	136,423,000	106,880,000	309,100,000
1880 .	274,268,000	150,485,000	622,800,000
1890 ..	114,635,000	93,400,000	416,065,000
1900 ..	216,853,000	127,144,000	626,375,000
1905 ..	240,411,000	97,410,000	635,087,000
1910 ..	449,794,000	153,847,000	1,084,446,000
1913 ..	642,756,000	170,352,000	1,220,474,000

Only a very short time ago Great Britain held the foremost place as an importer of goods into Russia, a large part of which went via Germany Her position has rapidly been taken by Germany In 1913 Germany supplied Russia with more than one-half of her foreign imports, and these consisted chiefly of manufactures required for the development of the country The goods sent from Germany into Russia consisted of iron and steel, implements, machinery, tools, nails, constructional material, hardware, chemicals and pharmaceutical goods, and other manufactures, while England's exports to Russia consisted very largely of coal During the last few decades Russia had become as dependent upon Germans for the direction and development of her economic life as for the conduct of her policy and the direction of military affairs The Germans had obtained so strong a hold upon the Russian Army and Administration, upon the Russian Universities and Russian business, that the Russians found it exceedingly difficult to dispense with German assistance. Baron Heyking wrote in his book *Problems Confronting Russia* .

During the Great War the persecution of the Baltic stock of Teutonic descent was going on in face of the fact that none of them refused to fight for Russia, that many won high distinctions for valour on the battlefield or died for their country, and that whenever they had a chance to do so they served their country with all their power and energy. Whatever may have been their worth in the past, they have always upheld order, law, and organisation, and in this respect their services were invaluable to Russia. But as soon as war broke out a veritable campaign was started for depriving them of office, and men were thrown out of employment who were the mainstay of the administration and industrial life of the country, for no other reason than that they were of Baltic origin. . . The systematic discarding of Generals bearing German names during the war was a grave mistake, for these men were a most reliable, loyal, and efficient element in the Russian Army In discarding men of their own nationality, but of Teutonic origin, holding positions in the army, civil administration, and industrial establishments, Russia did herself indeed a terrible wrong These men simply could not be replaced. Their absence was one of the reasons of the quick degeneracy of the Revolution into rapine and anarchy

In the past the Germans and the Russians have co-operated for their joint advantage The two nations have been drawn towards one another by three motives. by their mutual hostility to the Poles, by the desire of the Germans to exploit the Russian State and the Russian people, and by the desire of the Russians to make use of the abilities of the Germans. The currents of history are not easily reversed. Century-old tendencies of co-operation among neighbour nations are not easily destroyed. It seems highly probable that Russia and Germany will try once more to dominate and to exploit Poland and perhaps to divide the country between themselves, and that the Germans will strive again to make use of the good-nature, docility, and submissiveness of the Russian people and of the wealth of their huge country

The creation of a powerful and independent Poland, of a great democratic and Roman Catholic State which separates the two non Catholic States, will set up a strong physical barrier between Germany and Russia. However, the existence of a powerful Poland need not prevent the Germans penetrating and permeating Russia and obtaining once more the direction and control of the government of the country, of its army, of its Administration, of its intellectual life, and of all its economic factors. The Bolsheviks have almost exterminated the intellectual leaders of the Russian nation. A regenerated Russia will find itself almost a leaderless mob The new Russia will therefore more than ever be dependent upon the guidance of able foreigners. The situation of the new Russia will resemble that of Russia under Peter the Great, when it emerged from barbarism.

Germany has mercilessly exploited Russia, and has then ruined it. Although the Russians may hate Germany and may not wish to fall once more under German influence, circumstances may prove too strong for them, and may favour the return of the Germans to power in that great country Germany lies nearest at hand Many Germans in Germany speak Russian, and are intimately acquainted with Russian society, with Russian predilections and prejudices, and with Russian affairs. Very few Americans, Englishmen, and Frenchmen, know the Russian language, and still fewer are in touch with the Russian people. The numerous German emigrants who have lived in Russia for decades and the Germans of the Baltic provinces will be so many agents and interpreters acting in Germany's interest. They may once more supply the connecting-link between the two countries. A starving man will take bread even from his worst enemy. If Englishmen, Americans, and Frenchmen, concentrate all their energies upon developing their own territory and exploiting their resources, and upon capturing the trade of the world, Russia would be forced against her will to apply to Germany for the material assistance and for the skilled leaders she requires. Thus Russia may gradually, and almost imperceptibly, become once more a German preserve, a sphere of German influence, and a German protectorate.

The latent resources and possibilities of Russia are practically unlimited. It is in the highest interest of Europe and of the world that Russia be wealthy, cultured, independent, happy, and strong; that Russia's power and Russia's legions should not fall again under the influence of a foreign Power, and be hurled by that Power against the peaceful nations of the world. Therefore, the Governments of the victorious democracies should devote their intelligence and energy not only to the setting up of a chain of independent States physically separating Russia from Germany, but should by all means in their power promote the economic, intellectual, and administrative regeneration of that country, the fate of which may conceivably determine the fate of the world.

CHAPTER XVII

THE ECONOMIC POSITION AND FUTURE OF JAPAN

THE development of the commerce, trade, navigation, and industry of a nation depends mainly on two factors: on the natural circumstances of the country, and on the abilities, traditions, and ambitions of the people inhabiting it.

Japan consists of a number of islands which have much length but little width, and the country is exceedingly mountainous. The consequence is a twofold one: the people have to work exceedingly hard and to live with extreme frugality in order to make a living, and they are forced to rely very largely on the sea for communication between the different parts of the Empire and for earning their daily bread.

As lofty and rugged mountains prevail throughout the Empire, only a small proportion of land is suitable for tillage. The Japanese live chiefly on rice, which yields very large harvests, but then the rice crop is notoriously unreliable. Famines are frequent in those countries where rice is the staple food. Besides, the absence of plains is very unfavourable to the production of meat. Consequently the whole of Japan possesses only 1,342,990 cattle, or about one-tenth as many as the United Kingdom. The number of sheep, goats, and pigs, kept is quite insignificant.

The Japanese Empire is exceedingly densely inhabited. In 1917 the population was as follows:

In Japan proper	56,550,348
In Korea	16,998,191
In Formosa	3,650,047
In Saghalien	68,207
Total ..	77,266,793

The population of Japan and of its recently acquired territories increases with extraordinary rapidity. The inhabitants of Japan proper increased from 49,588,804 in 1908 to 56,550,348 in 1917 If we allow for the scarcity of agricultural land, Japan is by far the most densely populated country in the world, and as the people are multiplying with extraordinary rapidity, it is perfectly obvious that the pressure upon the scanty national resources is becoming rapidly greater, that from year to year the difficulty of the people to make a living is growing; that they are forced, quite as much as the people of the United Kingdom, to rely for their existence on the manufacturing industries, on foreign commerce, on trade and navigation, and on the fishing industry.

The Japanese have been a commercial, an industrial, and a seafaring nation since the earliest time. Naturally, they are at least as fit for industrial and commercial success as are the English people and Americans • In addition to these qualities they have a quality which is bound to favour their industrial and commercial expansion very greatly. While the men of the West strive for economic success mainly in order to improve their position, the motive of gain is reinforced in the case of the Japanese by their patriotism. The Japanese merchant, manufacturer, shipowner, clerk, artisan, or sailor, works with the greatest conscientiousness and ambition, not only in order to benefit himself, but also in order to benefit his country. Hence Japanese business men and Japanese workers will readily undertake unprofitable or hazardous work in the belief that the country is benefited thereby That motive is totally missing among the more individualistic peoples of the West.

As the Japanese are compelled to live very largely on food imported from abroad, they must pay for their food imports and for the imported raw material which they lack by means of exports. With the object of paying for these indispensable foreign imports, the Japanese have striven to develop their export trade with the greatest energy. Among their agricultural exports, that of silk and silk tissues is particularly important. The rapidity with which silk-production has increased in Japan may be seen from the fact that it expanded from 3,512,965 kwan (a kwan is equivalent to 8¼ pounds) in 1908 to 7,528,176 kwan in 1917. In the short space of a decade Japanese silk-production more than doubled. The production of tea increased during the same period by 50 per cent., and that of most agricultural staples expanded likewise very considerably.

Modern industrial success is based upon the employment of machinery, and it is largely dependent upon an abundant supply of coal and iron. Unfortunately, Japan is exceedingly poor in both these materials. Her store of coal is very small. It comes only to about 8,000,000,000 tons, while that of the United Kingdom is about 190,000,000,000 tons. The iron ore possessed by Japan is supposed to contain 28,000,000 tons of metallic iron, while the iron ore of the United Kingdom contains no less than 455,000,000 tons of iron in sight, with reserves which are believed to be at least twenty times as large. The iron ore reserves of Japan are supposed to be exceedingly small.

An energetic nation can frequently replace by some means or other the materials it requires, but does not possess. Coal as a means of power for industrial purposes can largely be replaced by electrical energy derived from waterfalls. Japan is rich in waterfalls which may be harnessed. Besides, China abounds in both coal and iron ore. Hence

Japan may derive the coal and iron she lacks from the inexhaustible store of her continental neighbour.

Japan has developed her natural resources with the greatest energy According to the Eighteenth Financial and Economic Annual of Japan, an official publication similar to the Statistical Year-Book of the United Kingdom, Japan's production of coal, copper, lead, pig-iron, and steel, has increased as follows during the last decade:

Year.	*Coal.*	*Copper.*	*Lead.*	*Pig-Iron.*	*Steel.*
	Tons	*Kin* (1⅓ *pounds*)	*Kin*	*Kwan* (8¼ *pounds*).	*Kwan*
1908	14,825,363	67,754,886	4 850 501	11,201,874	695,826
1913	21,315,962	110,835,408	6 294 854	15,108,682	3,660,664
1917	26,361,420	180,063,749	26,345,308	32,741,848	98,672,466

These figures show an extraordinary progress During the last decade the production of coal has nearly doubled, that of copper has nearly trebled, that of lead has grown more than fivefold, and that of steel considerably more than a hundredfold The production of copper, which is extremely important in shipbuilding and in the manufacture of electrical apparatus, was valued in 1917 at £12,000,000, that of lead at £5,500,000, and that of steel at £8,250,000 Of course, war prices have swelled these figures to some extent

The table given furnishes figures of production for 1908, 1913, and 1917. Therefore, it gives a picture of production during the five years preceding the War and during the War period. It will be noticed that the production of coal, copper, lead, pig-iron, and steel has increased very rapidly during the five years preceding the Great War, and that the War itself has proved for the Japanese industries a most powerful stimulus. Between 1913 and 1917 the production of lead increased fivefold and that of steel twenty-five-fold

The Japanese manufacturing industries have expanded as mightily as have the Japanese mining industries. The progress of the Japanese manufacturing industries may most briefly and most impressively be summarised as follows:

Year	Coal Consumed in Factories	Operatives Employed	Electrical Horse-Powers Used
	Tons		
1907	4,420 545	643.292	32,703
1913 ..	7.613 893	916 252	243 563
1916	10 426 076	1 095 301	293 386

During the last decade coal consumption in the Japanese factories has increased two-and-a-half-fold, the number of operatives employed has increased by about 60 per cent., and the number of electrical horse-powers used has increased no less than ninefold Not so long ago Japan was known as a country the industrial exports of which consisted chiefly of drawing-room knick-knacks, cheap matting, etc , which were the produce of handicraft Of recent years. and especially during the last decade, Japan has become a manufacturer of Western productions on a very considerable scale, and her methods of production have become exceedingly efficient The most complicated industrial production is supposed to be the warship and the liner Not so very long ago Japan imported even her small boats from abroad. Recently she has launched gigantic Super-Dreadnoughts and rapid passenger vessels which have won the unstinted admiration of the highest English and American experts. How Japanese shipbuilding is developing and how Japanese-built ships are rapidly replacing Western-built vessels may be seen from the following official figures:

STEEL AND IRON BUILT VESSELS.

Year.	*Built in Japan.*	*Built Abroad.*
1907	173	234
1909	225	248
1911	322	309
1913	445	322
1916 . . .	519	339

The manufacturing industries are based upon the use of raw materials While certain raw materials, such as coal and iron, are scarce and comparatively dear in Japan, the most important raw material of all, human labour, is exceedingly cheap, plentiful, and efficient, and its possession makes up, and more than makes up, for the deficiencies mentioned. The Financial and Economic Annual of Japan enables us to obtain the following picture of Japanese labour conditions.

AVERAGE DAILY WAGES (YEN).

	1907.	**1909.**	**1911**	**1913.**	**1916.**
Bricklayer . .	0·96	1·01	1·06	1·09	1·07
Tile-roofer .	0·87	0 94	1·00	1·05	1·02
Stone-cutter . .	0·87	0·93	0·94	1·01	1·00
Shipwright . .	0·81	0·81	0·86	0·93	0·96
Plasterer . .	0·76	0·82	0·86	0·93	0·80
Tailor (European dress . .	0·75	0·79	0·85	0·88	0·87
Carpenter . .	0·75	0·80	0·83	0·88	0·85
Sawyer . .	0·73	0·78	0·78	0·85	0·84
Paper-hanger . .	0·66	0·73	0·75	0·79	0·80
Cabinet-maker	0·68	0·75	0·79	0·84	0·80
Weaver (male) . .	0·42	0·44	0·43	0·45	0·49
,, (female)	0·24	0·26	0·25	0·28	0·32
Dyer	0·42	0·46	0·54	0·50	0·53

The Japanese yen is equivalent to 2s 0¾d Generally, the yen is for convenience' sake treated as being equivalent to 2s The wages given above the line are the highest wages paid in Japan according to the official annual It will be noticed that in 1916 only in three trades the wages slightly exceeded 2s per day These favoured trades were the trades of the bricklayer, of the tile-roofer, and of the stone-cutter, where great strength and skill is required. Even the skilled tailor who makes European clothes earns considerably less than 2s per day

By far the most important manufacturing industry of Japan is the textile industry. It will be noticed from the figures given below the line at the bottom of the table that in 1916 the male weaver earned a trifle less than 1s. per day, and the female weaver a trifle less than 8d. per day. We may say that the male workers of Japan earn on an average from 1s to 2s per day, and the female workers from 8d to 10d per day Of course, the eight hours' day or the seven hours' day or the six hours' day is unknown in Japan Working hours seem to be as a rule from ten to twelve per day It stands to reason that efficient workers who employ the most modern and most powerful machinery and who earn a wage of 1s. or so per day will prove exceedingly successful competitors to the highly paid workers of the Western countries.

Wages have gradually been rising in Japan. It will be seen from the table that during the decade under consideration wages, roughly speaking, have risen about 10 or 15 per cent. between 1907 and 1916 However, during the same period Western wages have risen far more quickly. The suggestion has been made by well-meaning idealists and by various labour leaders that wages should be made uniform throughout the world by means of international agreement. The mere consideration of the wages customarily paid in Japan shows the impossibility of carrying out that proposal. The wages paid in the well-remunerated Western industries would be equivalent to a Cabinet Minister's salary in Japan. After all, wages stand in some proportion with the living conditions of the people A Japanese worker who can provide for a few pence a day the house-room, the food, and the clothes to which he is accustomed, would scarcely know what to do with a European wage in Japan, exactly as a Japanese worker could not exist in an English or American town on half a yen a day

The working conditions in the Japanese factories in general may be gauged from the following figures, which also are taken from the official annual, and which refer to the exceedingly important cotton industry

JAPANESE COTTON INDUSTRY

Year.	*Working Days per Year.*	*Working Hours per Day*	*Average Wage (Male)*	*Average Wage (Female).*
			Yen	*Yen.*
1907	330	21	0·41	0·25
1913	320	19	0·45	0·29
1916	319	20	0·50	0·32

In the cotton industry two shifts of ten hours each are apparently worked Thus, the maximum result is obtained from the machinery, which is allowed to rest only during a minimum of time, when overhauling, etc., is necessary.

Japan, as has previously been stated, is vitally interested in developing her export trade in order to be able to import the food she requires and the foreign raw materials which she needs. Her exports have during recent years expanded in the following remarkable manner:

JAPANESE EXPORTS.

Year.	*Yen.*
1904	319,260,896
1909	613,112,511
1913	632,460,213
1914	591,101,461
1915	708,306,997
1916	1,127,468,118
1917	1,603,005,048
1918	1,962,700,258

Between 1904 and 1913 Japan's exports have doubled. Since 1913 they have trebled in consequence of the War. If we take the yen at 2s., Japan's exports have increased from £32,000,000 in 1904 to £196,000,000 in 1918. That is a marvellous record, a record which is probably unparalleled in economic history. Of course, Japan's export figures have been swelled to some extent by abnormally high prices However, it cannot be doubted that Japan has secured an extraordinary progress as an exporter in the markets of the world

Japan, like many exporting countries, such as Germany and the United States, has planfully endeavoured to develop her export trade towards the nations in the vicinity of the homeland The bulk of Japanese exports are sent to Asia, and particularly to China The Japanese have for many years demanded, and fought for, the open door in China, considering that China was the most natural outlet for the Japanese manufactures, and believing that they need not fear Western competition in that quarter. Some idea of the development of Japanese exports in the East may be obtained from the table on following page.

The development of Japan's export trade in the Far East has been amazing. During the decade of 1904-1913 her exports to China have trebled, and so have her exports to British India. Between 1904 and 1917 Japan's exports to China have grown sixfold, and those to India more than tenfold. During the War Japan has neglected to some extent the Far Eastern market for the European and American markets, which were exceedingly profitable, owing to the heavy demands made on the neutral industries. The vast development which the Japanese industries have secured during the struggle will before long, no doubt, affect the commercial position in the Far East, for Japan may be expected to concentrate her energies once more upon the gigantic markets of Asia.

JAPANESE EXPORTS (YEN)

	1904	1909	1913	1917.
To China .	67,985,873	89,284,821	184,496,773	384,105,368
To Hong-Kong	28,160,103	21,675,636	33,621,978	57,241,924
To British India	9,404,954	14,425,973	29,873,414	101,298,440

Great Britain is strongly, one might perhaps even say vitally, interested in the Asiatic markets, and especially in the Indian market, which is by far the most important market of Lancashire. India takes the bulk of British cottons. Now, it must be remembered that the cotton industry has become the most important industry of Japan. Japan has become another England in the Far East, possessing an overpopulated island, vitally interested in the export trade and in shipping, and particularly adapted for developing a huge cotton industry. The extraordinary development of the Japanese cotton industry may be seen from the following figures:

RAW COTTON IMPORTED INTO JAPAN.

Year.	*Yen.*
1904	71,466,844
1907	114,034,725
1910	157,823,603
1913	231,480,883
1918	515,558,989

In 1918 Japan imported raw cotton valued at more than £50,000,000. The full significance of that fact will be clear only if we bear in mind that Japan's cotton industry is of yesterday. In 1877 the Japanese Government ordered experimentally a little cotton machinery in England. In 1882 the first joint-stock cotton spinning mill was created at Osaka. In 1897 Japan exported shirting to the value of only 346,036 yen. In 1917 Japan's exports of that commodity exceeded 40,000,000 yen. In 1891 Japan exported cotton yarn to the value of 7,873 yen. In 1917 her yarn exports came to 108,139,252 yen.

The United States Government published in 1918 a Bulletin on Cotton Production and Distribution. According to that publication, cotton consumption in 1916-17 was as follows:

	Bales.
United States	6,549,000
United Kingdom	4,030,000
India	1,764,000
Japan	1,850,000

Japan has developed a truly gigantic cotton industry. It will be observed that the young cotton industry of Japan consumed in 1916-17 more cotton than the ancient cotton industry of India; that the United Kingdom consumed only a little more than twice as much as the young Island Empire. Of course, it must be borne in mind that England specialises in the finest cottons, while Japan specialises at present only in the coarser and cheaper makes. However, she is improving in quality as well as in quantity, and the time may be near at hand when she will become a formidable competitor to Lancashire even in those specialities which the Manchester district has hitherto monopolised. During the War Japanese exports of cotton manufactures have grown as follows:

	1913	1917
	Yen.	*Yen.*
Cotton yarn	70,997,538	108,139,252
Cotton crêpe	1,890,186	4,005,972
Cotton flannel	11,247,594	10,837,392
Shirtings and sheetings	11,198,348	40,177,295
Cotton tea-cloths	1,330,503	7,380,521
Cotton twills	8,441,592	26,823,517
Cotton towels	2,641,576	3,009,676
Cotton hosiery	8,847,418	16,718,976

This table shows most interestingly the recent development of the Japanese cotton industry During the War Japan's exports of cotton yarn have increased only by 50 per cent During the same period the exports of her finished manufactures have doubled, have trebled, have quadrupled Her exports of cotton flannels have increased no less than eightfold It is perfectly obvious that Japan is developing with the utmost energy the exportation of the more highly finished cotton manufactures in which Lancashire has hitherto enjoyed practically a monopoly.

It is worth noting whence Japan obtains her raw cotton. In 1917 she imported the raw produce from the following countries:

	Yen.
From British India	204,311,120
From China	30,596,309
From Egypt	10,848,008
From the United States	84,085,431
From all other countries	1,135,213
Total	330,976,081

It will be observed that at present Japan receives the bulk of her raw cotton from British India. Conceivably the time may come when India may wish to manufacture her own cotton, when Japan may be forced to draw her cotton either from the United States, where she has to compete with the American and English buyers, or to develop cotton-growing either in her possessions or in China

During the War Japan has mightily expanded her export trade, not only in respect of cotton manufactures, but in respect of other goods as well The following figures summarise the development mentioned

JAPANESE EXPORTS (YEN)

	1908	1913	1917.
Cotton tissues and yarns .	37,916 443	108,878,520	248,533,467
Ores and metals	23,390,739	31,455,256	171,873,534
Metals and manufactures thereof	3,451,208	3 584,662	29,381,289
Machinery ..	5,720,381	6,448 046	117,744,871

It will be noticed that between 1908 and 1913 Japan's exports of cotton tissues and yarns have roughly trebled, while her exports of ores and metals, of metal manufactures and machinery, were practically stationary During the War, Japan's exports of cotton manufactures have a little more than doubled, but her exports of ores and metals have increased nearly sixfold, those of metal manufactures more than eightfold, while her exports of machinery have increased very nearly twentyfold. That development can only be called prodigious Before the War Japan was a large importer of machinery She bids fair to compete seriously in the future not only with Manchester and the surrounding towns, but even with Sheffield and Glasgow. That is perfectly obvious from the figures given.

The War has given a mighty stimulus not only to the Japanese manufacturing industries and export trade, but also to the Japanese shipping industry The extraordinary and almost incredible development which the Japanese shipping trade has taken during the great struggle may be seen from the following table·

Value of Goods Exported from Japan (Yen)

	1904	1909	1913.	1917
In Japanese steamers	18 304 181	185.311.454	327.270.968	1.207 638 830
In British steamers . .	155.001.625	109.769.437	153.040.707	133,843.029
In other steamers	143.157 954	114.107.053	145.305.953	47.949.385
Total	316.463.760	409.187 944	625.617.628	1.489 431,244

In 1904 one-half of Japan's exports was carried in British steamers, and only one-seventeenth of Japan's exports was carried in Japanese steamers In 1909 British steamers carried only one-fourth of Japan's exports, and Japanese steamers carried one-half of these exports In 1913, the year preceding the War, England's share in the Japanese export trade was still one-fourth, as in 1909, and Japan's share was still approximately one-half In 1917 nearly nine-tenths of Japan's exports were carried in Japanese steamers, and the insignificant remainder was shared fairly equally between British and other steamers. The War gave to the Japanese merchant marine virtually a monopoly in the Japanese trade

The Japanese have managed their merchant marine with consummate skill and wisdom, and with wonderful energy. Instead of distributing their war earnings in the form of dividends, the Japanese have invested their profits partly in new tonnage, partly have they used them for creating a vast reserve fund. Between 1908 and 1917 the gross tonnage of the Japanese shipping companies has increased from 564,179 tons to 1,127,483 tons, or has doubled During the same period net earnings have increased from 3,847,139 yen to 143,143,073 yen, or have grown about fortyfold. Japanese shipping dividends have increased during the period under consideration from 4,210,300 yen to 72,004,643 yen, while the reserve fund of the shipping companies has increased from 22,019,382 yen to 126,016,590 yen In 1917 the Japanese shipping company possessed a reserve fund exceeding £12,000,000. The bulk of their war earnings was put to reserve, and that gigantic reserve will no doubt come into play during the peace

Japan has a number of very great advantages in the shipping trade, and especially in the shipping trade of the Far East. Owing to the lowness of wages paid in the Japanese yards, Japanese shipping is far cheaper than European shipping Moreover, the Japanese ships can be handled far more cheaply than European ships, because sailors' wages are exceedingly low Lastly, Japanese shipowners enjoy Government support, and they are willing to work with little profit, even at no profit, if they can thereby increase the strength of their shipping and the prestige of their country The competition of Japanese shipping will prove as successful as Japanese competition has proved in the cotton trade The Final Report of the Departmental Committee of the Board of Trade on the Shipping and Shipbuilding Industries after the War stated:

> 'In the Eastern trades (including the Indian coastal trade) the heavy subsidies paid by the Japanese Government to the Japanese lines have rendered the competition of the latter very formidable. The present withdrawal of British ships from the East on a large scale must inevitably render Japanese competition a factor of serious consequence after the War, important trades between foreign

countries, such as that between the United States and the Far East, whence almost all British ships have been withdrawn, may be captured entirely by the Japanese. It must be recognised that the competition of American, Japanese, and neutral flags in all the trades of the world will be much accentuated after the War.

We wish to draw special attention to the position of Japanese shipping It appears to us that geographical and economic conditions favour a formidable expansion of Japanese sea-power throughout the Pacific and the East, and we think that developments in this part of the world should be watched by H M Government in the years following the conclusion of peace

The industrial, commercial, and shipping activity of Japan has only begun Japan is a poor island country, and on the narrow territory of the Japanese dwell nearly 60,000,000 people who are animated by the desire to enhance the glory, power, and wealth of their country, and who are driven by necessity to make a living by developing their manufacturing industries, foreign trade, and merchant marine to the utmost It cannot be doubted that the Japanese are destined to be the English of the Far East Industrially and commercially they are bound to take England's place in the countries near at hand Of course, the Japanese have a particular advantage over England and all the Western nations in the gigantic Chinese market Racially the Japanese are totally different from the Chinese, but they can understand the Chinese more easily than Europeans because they also are Easterners, and, before all, because they can easily learn the Chinese language They find it, therefore, comparatively easy to make themselves understood in that gigantic country. Besides, they are near at hand, while the Europeans and Americans are far away. Last, but not least, the Japanese have acquired a great prestige in China. For all these reasons the Chinese markets are likely to fall more or less completely under Japanese control. The only question is whether the Japanese will completely dominate the Chinese markets within a decade or within two or three decades.

British and American labour demands high wages, wages the payment of which makes free competition impossible with Japanese labour. It is as unlikely that Japan will adopt Western wages as that England and the United States will adopt Japanese wages. In view of the fact that Japan is able to compete with machinery and organisation as perfect as European and American machinery and organisation by means of labour which is paid only a tithe of British and American wages, it seems only natural that British and American labour should wish to reserve the national markets to domestic industry. Japan, after having completed the economic conquest of China, may begin and complete the economic conquest of India. That would be Lancashire's ruin, for the bulk of Lancashire's manufactures are sold in that country. It is only reasonable that Japan strives to dominate with her manufactures the Chinese market, but it is equally reasonable that the Indian market should be reserved to the inhabitants of the Empire. China should be large enough for the Japanese. Besides, they would no doubt not desire to bring about Lancashire's ruin. There is room enough in the Far East for all comers, but their spheres of economic activity should be marked out in time, so as to avoid unnecessary and regrettable misunderstandings.

CHAPTER XVIII

THE BRITISH COAL PROBLEM AND THE SANKEY REPORT

In the present era, the industrial era, when a single artisan can do the work of a large number of workers with the help of powerful machinery, the prosperity and progress of nations depend on the use of an abundance of cheap power. Hitherto power for driving machinery has been chiefly generated from coal. In future it may be generated chiefly from waterfalls

The United Kingdom, the United States, and Germany, became the richest, the most industrial, the most progressive, and the most powerful nations chiefly because Providence had given them a superabundance of power in the shape of plentiful and cheap coal The economic predominance of these three States is due to coal. In 1913 the United Kingdom, the United States, and Germany combined produced 80 per cent. of the world's coal. India and the British Dominions produced an additional 5 per cent. All the remaining nations combined produced only 15 per cent

Before the advent of the steam-engine England's population was almost stationary. In 1801 England and Wales had 8,872,980 inhabitants, and France had 27,500,000 inhabitants. Owing to her wealth in coal, England's industries have since then developed so mightily that the population of England and Wales has increased more than fourfold since 1801. France's relative stagnation in population is no doubt largely due to the stagnation of her industries, and her industrial stagnation is probably chiefly due to the fact that she has little coal, and that her coal is very expensive, because it occurs in thin and irregular layers which are very difficult to work.

As coal means power, the material progress and economic position of modern nations can be measured by their coal-production. Since 1865 the production of coal and lignite of the three great industrial States has increased as follows:

Year.	*United States.*	*Germany.*	*United Kingdom.*
1865	24,790,000	28,330,000	99,760,000
1880	66,830,000	50,120,000	149,380,000
1895	177,590,000	103,960,000	193,350,000
1913	504,520,000	273,650,000	287,410,000

In 1865 the United Kingdom produced about twice as much coal as the United States and Germany combined. At that time England absolutely dominated the industries of the world, owing to her supremacy in coal. Since then industrial supremacy has gone to the United States. In 1913 the United States alone produced twice as much coal as the United Kingdom, while Germany had approached the United Kingdom in coal production and in industrial power and in wealth as well.

The progress of industrial nations depends upon power, upon coal. Since 1865 British coal-production has grown threefold, German coal-production tenfold, and American coal-production twentyfold. The vast progress of the United States in population and wealth is largely due to her vast supply of cheap coal, for two-thirds of the income of the United States is derived from the manufacturing industries, and only one-third from agriculture, mining, forestry, and fishing combined

The United Kingdom became the chief seat of the manufacturing industries and the greatest centre of the world's shipping trade principally because it dominated the world in coal. In 1845 Great Britain produced two-thirds of the world's coal. In 1865 she still produced one-half of the world's coal. In 1913 she produced only one-fourth of the world's coal. The position of the country is becoming precarious.

Great Britain lives chiefly by industry and trade. As her natural resources are only small, her export trade and her shipping trade are of the very greatest importance to the people, for the imported food and raw material must be paid for with exports or with services. It is obvious that the British manufacturing industries and the shipping industry can subsist only as long as they are able to compete successfully with their foreign rivals, and their ability to compete with the powerful foreign industries depends largely on the price of coal.

In the pursuit of the manufacturing industries, commerce, and shipping, Great Britain labours under very serious disadvantages. She must import from oversea about half of her food and the bulk of her raw materials, except coal. Her iron ore is poor in quality, and therefore uneconomic in use. The possession of cheap coal is her only great advantage. If that advantage should be destroyed, her industries would decline and decay, and her population stagnate and dwindle. Economically and politically as well she would sink to the rank of a third-rate Power.

The prosperity of England's shipping also depends upon cheap coal. The coal bill is an exceedingly important item in the cost of running ships. Moreover, ocean freights can be cheap only if the ships travel loaded both ways. England receives vast quantities of food and raw material, and the ships bringing these frequently leave laden with coal, for England's manufactured exports are of little bulk. If the British coal exports should be destroyed, if cheaper American coal should replace British coal in the markets of the world, the freights to and from Great Britain would rise, and with them would increase the cost of the imported food and raw material, to the great harm of the manufacturing industries and of the people.

Although the United Kingdom possesses an abundance of coal, the best layers are rapidly becoming exhausted. From year to year she has to rely upon deeper and upon thinner seams, which are more expensive to work. In coal-getting Great Britain suffers from the disadvantage that other States possess a more plentiful supply of thick seams near the surface, and that her competitors, especially the United States and Germany, have an abundance of cheap timber suitable for pit-props.

The United States, France, Italy, Switzerland, Sweden, Japan, and many other countries have an abundance of waterfalls which may be made to furnish cheap electric power. The United Kingdom has practically no waterfalls. Her coal is her only great resource. Coal is therefore the basis of her industrial prosperity. For Great Britain coal is the key industry of key industries. It follows that England's position in the world depends upon cheap and plentiful coal. Coal is the foundation of her economic fabric, of her social fabric, of her financial strength, of her military and naval power, of her greatness, of her future. The future of the British Empire, as that of Great Britain, depends upon British coal.

The bulk of the coal raised is used in industry and commerce. Only a small portion is employed for domestic purposes. According to the Final Report of the Coal

Conservation Committee (Cd. 9084), the home consumption of coal was as follows in 1913

	Tons.
Railways	15,000,000
Coasting steamers (bunkers)	2,500,000
Factories	60,000,000
Mines	20,500,000
Iron and steel industries	31,000,000
Other metals and minerals	1,250,000
Brick-works, potteries, glass-works, and chemical works	5,750,000
Gas-works	18,000,000
Domestic	35,000,000
Total (say)	189,000,000

In 1913 the United Kingdom produced, according to the Report mentioned, 287,430,473 tons of coal. It will be noticed that only about one-eighth of the coal raised was used for domestic purposes, and even part of that was probably used industrially in small bakeries, laundries, etc. About four tons of coal are needed to produce one ton of steel. The cotton industry uses about 10,000,000 tons of coal per year, and the building trade about 8,000,000 tons per year. Dear coal is not so dangerous because it affects the private consumer as because it hampers industrial production all round. Dear coal means dear freights by land and sea, dear raw materials, dear electricity, dear gas, dear iron, dear cotton goods, dear houses, dear bread.

The country's prosperity and strength and the future of the Empire depend upon cheap and plentiful British coal. If we cannot have a plentiful supply of cheap coal, it is quite useless discussing the future development of industry and trade and planning great housing and land settlement schemes and other schemes of social amelioration; for dear and scarce coal means poverty and disaster to all, including the coal-miners. The effect of permanently dear and scarce coal would be as fatal to the people as would be a lost war. Scarce and dear coal would be a terrible handicap. It would inevitably lead to the strangulation of the industries, to widespread unemployment, ruin, and revolution.

The United States have twenty times as much coal as the United Kingdom. Germany within her frontiers of 1914 had more than twice as much coal as the United Kingdom. A Germany possessing cheap and abundant coal might turn her defeat into victory over a Great Britain which suffers from scarce and dear coal. Great Britain, having no alternative source of power, depends for her existence as much upon cheap and plentiful coal as a man depends for his life upon an adequate supply of air. To the United Kingdom coal is life.

Formerly coal was cheaper and more plentiful in Great Britain than elsewhere. Lately coal has become scarcer and dearer in this country than in some competing countries. The reason for this is obvious. The price of coal, as of most commodities, depends chiefly upon the cost of labour. According to the official Coal Tables, the prices of coal have changed as follows between 1886 and 1912 in the United States and the United Kingdom:

AVERAGE VALUE OF COAL PER TON AT THE PIT'S MOUTH.

Year.	*United Kingdom.*		*United States.*	
	s.	*d.*	s.	*d.*
1886	4	10	6	4¼
1887	4	9¾	6	6¼
1888	5	0¾	6	0
1910	8	2¼	5	10¼
1911	8	1¾	5	10¾
1912	9	0¾	6	1

It seems at first sight inexplicable that coal should be cheaper in the United States than in the United Kingdom, although American wages are considerably higher than British wages The reason of this apparent contradiction may be found in the following figures, which are taken from the Coal Tables published by the Board of Trade

COAL PRODUCED PER ANNUM PER PERSON EMPLOYED

Year	*In the United Kingdom*	*In the United States*
	Tons.	*Tons*
1886-90	312	400
1891-95	271	444
1896-1900 ..	298	494
1901-05 ..	281	543
1906-10	275	596
1908	271	538
1909 .	266	617
1910	257	618
1911	260	613
1912 (strike year)	214	660
1913 . .	259	681

The two columns give an extraordinary contrast In the United States production per man has increased steadily and enormously *pari passu* with the improvement in mechanical outfit, but during the same period production per man in the United Kingdom has steadily declined notwithstanding the introduction of improved machinery for coal-getting. The result is that an American mine-worker produces nearly three times as much (exactly two and two-thirds as much) as a British mine-worker, that one American does almost as much work as three Englishmen. The waste of labour involved in low production per man makes British coal more expensive than American coal notwithstanding lower British wages.

British coal has steadily become dearer than American coal. If the difference to England's disadvantage should continue increasing, the Americans will capture, first the British coal export trade, and then the British shipping trade and the British manufacturing industries. That is absolutely inevitable The Coal Conservation Committee recognised the extreme seriousness of the position caused by the underproduction per miner in Great Britain After dwelling upon the increase of production per man in America, and the continued decrease of production per man in the United Kingdom, it stated

> Various reasons may be advanced to explain the decrease, but none of them can be regarded as adequate. The matter calls for the most complete investigation on the part of employers and the representatives of labour, as the future prosperity of the industry itself and of the industrial position of the country generally depends very largely upon a solution of the problem being found
>
> Where there is any unnecessary restriction of output, this should be removed, and if such restriction is in any degree due to a feeling of insecurity on the part of the workmen, and a belief that if they put forth a special effort to increase production they will suffer a reduction in their wages rates, a strong effort should be made to remove any justification which may exist for such a belief
>
> The interests of the employer and his workmen appear to be identical in this important matter, and the fullest co-operation between them is required for the attainment of this end. It is only by increased production per head of the persons employed that our trade position can be maintained and that improved conditions of employment can be secured, and this ought to be recognised by workmen as well as by employers

The decrease in British coal-production per man is apparently due not so much to natural conditions in the mines or to the action of the mine-owners as to the action of the miners Under the sliding scale arrangement miner's wages rise with every rise of coal prices and fall with every fall of coal prices Consequently the miner is personally and pecuniarily interested in bringing about high coal prices by means of underproduction, by creating an artificial scarcity The coal-owners find it difficult to increase production because, as the law stands, miners on strike cannot be replaced by outside labour Legislation has made the miner the predominant partner in the mining business. It has given him every inducement to raise coal prices to the utmost by reducing output, and has given him security of employment, has given him a monopoly of work in the mine in which he is occupied The miner, having been made the predominant partner in the coal-mining industry, is making use of the monopoly by which he has become all-powerful owing to the absolute dependence of the country upon coal

In March, 1919, the Committee of investigation which had been appointed by the Government, and which was presided over by Mr. Justice Sankey, published its preliminary report and recommendations If Mr Justice Sankey's Report on the Coal Problem was merely designed to tide England over the coal difficulty and to patch temporarily the differences which had arisen in the coal trade with regard to wages and hours of labour, the recommendations contained in it were of value. If, on the other hand, the Report was written with a view to base upon it a permanent settlement, it can only be described as a great disaster.

According to the estimates given, the miners will under the proposed settlement receive per annum in additional payments a sum approximating £50,000,000, which may increase to about £100,000,000 if the projected seven hours' working day should before long be reduced to a six hours' working-day. This increase in wages and in the price of coal would be a comparatively trifling matter if it involved only the spending of money After all, people live, not by money, but by, and on, goods which are produced for use and consumption The most disastrous aspect of the Sankey Report is that it not only involves a vast extra expenditure at a time when economy is most urgently needed, but that in addition it is bound to bring about a reduced production of coal at a time when vastly increased production is urgently needed

The Sankey Report stated

> The Seven Hours' Act will mean that the men are underground, taking the average, seven hours and thirty-nine minutes, and relying upon the valuable and weighty advice of Sir Richard Redmayne, the Chief Inspector of Mines, the estimated decrease in output will be a little under 10 per cent per annum.

Of course, the estimated decrease in coal-production by the shortening of hours might conceivably be balanced by more efficient production a better attendance of miners, etc On this point the Sankey Report stated:

> If the 10 per cent. estimated reduction of output can be decreased, and if the output of the first year of the War—namely, 1914—266,000,000 tons, can be maintained, the difficulty of finding the money will be greatly minimised.

This paragraph is a most extraordinary one We live in a progressive world in which the consumption of coal has rapidly been increasing, and will continue increasing for decades Yet the Sankey Report expresses with extraordinary short-sightedness the somewhat vague and possibly deceptive hope that British coal-production may remain stagnant at a time when coal-production of competing nations is likely to increase by leaps and bounds.

Coal is the very life-blood of industrial nations. We live in a competitive world The importance of coal and the relative position which Great Britain occupies in the industrial world, especially when compared with the United States and Germany, was exceedingly well expressed in the Report to the Bituminous Coal Trade Association on the Present and Future of the Bituminous Coal Trade which was written by Mr. Henry S. Fleming, the Secretary and Treasurer of the Bituminous Coal Trade Association of America, and published in 1908. In that interesting, important document we read.

> The growth of the coal industry represents the growth of the civilising influence of industrial progress, which is, in itself, the actual foundation of our civilisation. Coal is the base upon which all manufacturing industries rest. Stop the production of coal, and the business of the world stops. It is the most important of the mineral products of the earth, and differs from all others in that it can be used for only one purpose—the production of energy.

As approximately only one-eighth of the coal produced in the United Kingdom is used for domestic purposes, it is clear that the artificial scarcity and dearness of coal which the miners seem likely to create will have the most disastrous effect upon British industry, shipping, and commerce. Besides, the precedent of enforcing increased pay for decreased output set by the miners may be adopted by other trades, with the result that England may have increased wages and decreased production all round. Prosperity cannot possibly be created by increasing wages and decreasing production, for men's prosperity is created, not by the possession of paper money or of coin, but by an ample consumption of food, clothes, etc. Of course, decreased production and increased consumption cannot possibly go together. Besides, the precedent created by arbitrarily reducing the income of the mine-owners, by confiscating part of their property, may before long be exploited by the professional creators of unrest with regard to manufacturers, merchants, bankers, shipowners, etc.

For all we know, the Sankey Report may prove the opening of a very dark chapter, not only in British industrial history, but in British social history as well

The position of Great Britain in the industrial world and her industrial future depend obviously to a very large extent on an ample supply of cheap coal which is the motive force of practically all machinery on land and sea. With regard to the past development and future position of Great Britain and of the other principal manufacturing nations Mr Fleming gave in his excellent report the following retrospective summary and forecast of the future:

Actual Production (Gross Tons).

Year	*United States*	*Great Britain*	*Germany*	*Total of the World*
1870	29,400,000	110,400,000	26,300,000	218,000,000
1880	63,800,000	146,900,000	58,200,000	331,900,000
1890	140,800,000	181,600,000	87,800,000	502,500,000
1900	240,700,000	225,100,000	147,100,000	755,400,000

Estimated Future Production

Year	*United States*	*Great Britain*	*Germany*	*Total of the World.*
1910	433,300,000	247,800,000	195,500,000	1,093,600,000
1920	685,400,000	282,600,000	271,700,000	1,572,600,000
1930	954,800,000	318,200,000	360,500,000	2,126,700,000
1940	1,215,700,000	354,800,000	455,700,000	2,732,100,000
1930	1,456,000,000	392,400,000	547,900,000	3,375,000,000

In 1870 Great Britain produced more than half of the world's coal, and therefore possessed more than half of the world's motive power In 1900 she possessed less than one-third, and the United States had gone ahead of the

United Kingdom. In 1913 the United States produced twice as much coal as Great Britain, and Germany had drawn nearly level with England although Germany's position in coal production had been relatively insignificant a few decades ago Thirty years are little in the life of a nation By 1950 the United States will, according to the very careful and conservative estimate of Mr Fleming, produce four times as much coal as the United Kingdom, and Germany will produce 150 000 000 tons more than England Of course, Mr Fleming's estimate was made before the possibility of the legal introduction of an eight hours day followed by a seven hours day and six hours day for British miners was seriously thought of. If the extraordinary shortening of the hours of labour and of output per man in British mines should not be followed by a similar reduction of output per man in Germany and the United States, Mr Fleming's forecast for the future may be completely falsified By 1950 Germany, within the limits of 1914 may produce twice as much coal and the United States five or six times as much coal as the United Kingdom If that should happen, the result would, of course, be that Great Britain would become another Belgium, that, from the industrial point of view she would cease to be a Great Power, and her reduction to a second-rate Power as an industrial country would inevitably be followed by her sinking to a second rate Power position from the political, military, and naval points of view as well The British Empire would be in danger, for a second-rate Power cannot possibly retain the greatest Empire in the world, nor can it hope to dominate its communications by sea.

In commenting upon the figures of past production of the principal coal-producing and industrial nations and upon their probable future output, Mr. Fleming significantly wrote.

> At present the greater part of the foreign demand (for coal) is supplied from Great Britain, but the coal resources of that country are being steadily and rapidly depleted, and its ability to meet the increasing foreign demand being reduced which would mean either imports into Great Britain to make up the deficit, or that country's inability to supply foreign requirements. In either case the United States or Germany are the only other countries in a position to produce a surplus.
>
> Already there are marked indications of the entrance of the United States into the foreign export business on a large scale. Whenever any labour or other causes disturb British mine conditions there is a rush of inquiries from foreign buyers to American producers, and while the actual orders and shipments have not yet reached any considerable tonnage, the wedge has entered, entered to stay, and is gradually forcing the opening wider. Whether we want it or not, the foreign demand for our coal will come, and will increase steadily and surely.

These words were written and published in 1908, before the legal establishment of an eight hours' day, of a seven hours' day, and of a six hours' day in British mines was seriously thought of. But already then it was clear to American experts that the United States or Germany or both would take Great Britain's place, because they possess not only a larger store of coal than the United Kingdom, but also because their coal-beds contain thicker seams which can therefore more easily and more cheaply be exploited. If to the natural handicap of a smaller store of coal and of thinner layers of the mineral occurring at a greater depth should be added the artificial handicap of a legally enforced seven hours' day, which may be followed by a legal six hours' day, for miners, the position will become absolutely disastrous for the British industries and for British prosperity.

The question arises, of course, whether the seven hours' day, or the six hours' day, represents the final limit of the miners' demands, or whether we shall hear presently demands for a five hours' day and a four hours' day and still further increased wages. Furthermore the question must be considered whether reduced hours and increased wages will lead to an increased output per man per hour, either by greater exertion on the part of the miners or by the introduction of labour saving machinery. While the yearly or daily output per miner has rapidly increased in the United States, in the British Dominions, in Germany, and in many other countries, British output per miner has steadily decreased. Unfortunately the British miner is, under the sliding scale arrangement, a beneficiary of high coal prices. The higher coal prices soar, the larger are his wages, and he knows enough of political economy to be aware that coal can be made dear by making it scarce. Consequently it is to be feared that he may continue his old policy of keeping the output low.

In former decades British coal was considerably cheaper than American coal. During the years preceding the War British coal had become 50 per cent. dearer than American coal because of the low production per miner in Great Britain. In 1919 British coal was about twice as dear as American. In the future the difference in favour of America may be still greater. If, as appears likely, a reduction of hours and increase of pay will be successfully demanded by the British railway and transport workers as well, freights also will be increased. The time may therefore be near at hand when the United Kingdom will no longer be able to export coal, for there is, of course, a limit to the export bounties which the British Government can pay; The time may be near at hand when America will be able not only to take England's place as a coal exporter to neutral countries, but when she will supply the British Islands as well with part of the necessary fuel at those high prices which the exactions of the miners seem likely to establish.

The miners have based their demands for shorter hours and higher wages on the miserable conditions under which they are living, on the inadequacy of their houses, etc. Of course, the miners' living conditions should be made as comfortable and pleasant as is possible. The miner's lot is no doubt a hard one. However, it is untrue that his lot is harder than that of other workers. If the miner's life were indeed a life of misery, the miners would abandon their trade for other trades, and workers engaged in more pleasant callings would shun the mines. This is not the case. It is extremely rare to find miners abandoning their mines for more pleasant occupations. On the other hand, hundreds of thousands of clerks, agricultural labourers, and other workers, have gone during the last few years into the coal-mines. The movement of the outside workers towards the mines and the absence of a movement of the mine-workers away from the mines shows that mining is an exceedingly attractive occupation both to the mine-workers themselves and to outsiders.

It seems vain to hope that the effect of the policy pursued by the British miners and their supporters will be counterbalanced by similar demands for shorter hours, decreased production and higher pay in Germany and the United States. In Germany the policy of reducing output has in the past been little practised by the workers, and in the United States it is almost unknown. Besides, the American coal-fields are so gigantic—their area is four times as large as that of the whole of the United Kingdom—that a combination of the miners for the purpose of artificially restricting output would be very difficult to create. Last but not least, the mine-workers in the United States are chiefly immigrants from South-Eastern Europe and from other countries, are men who speak different languages, who receive a pay far higher than they ever dreamt of in their old homes, and who therefore cannot be easily converted into a well-disciplined and homogeneous industrial army similar to that which is commanded by Mr. Smillie The American manufacturers and the American nation seem absolutely determined to have cheap coal. Hence the American Government has in the past destroyed every attempt at making coal artificially scarce and dear They will probably continue the policy of cheapness and plenty with regard to coal The result of cheap and plentiful coal in America, and possibly in Germany as well and of scarce and dear coal in the United Kingdom would undoubtedly prove disastrous to the British industries and the British people. It is to be hoped that the disastrous effect of creating an artificial scarcity of coal which may and probably will, be followed by attempts to create an artificial scarcity in other industries as well, will prove even to the blindest the disastrous folly of trying to create universal prosperity by creating a universal scarcity

CHAPTER XIX

THE DEVELOPMENT OF THE BRITISH RAILWAYS, WATERWAYS, AND ROADS

THE greatness and wealth of the Roman Empire was based upon its magnificent system of roads. The wealth and power of modern States is based upon their railroads. The marvellous progress of the United States is chiefly due to the magnificent railways of the country, for its vast resources could not have been developed without their help. The British Empire is more than four times as large in area as the United States. Yet the railway mileage of the Empire is only half as great as that of the United States. In 1913 the two great Anglo-Saxon countries compared as follows:

British Empire	134,131 miles of railway.
United States	251,984 ,, ,,

England was the pioneer in railroading, but she occupies no longer the foremost position in the railway world. She has fallen behindhand not only in the development of railways in the far-flung Empire, but even in the homeland. The great characteristic of the British home railways is their backwardness and their inefficiency. While the railways of other countries have rapidly advanced, the British railways, broadly speaking, have stood still, especially in that most important branch of railroading, the handling of freight. The progress of the British railways has taken chiefly the direction of improving the relatively little important passenger service. The freight service is still carried on by means of toy trains and toy trucks over toy bridges and through toy tunnels, up and down steep gradients and round narrow curves, as was done in the dark and early days of railroading

It is no exaggeration to say that, as regards freights, Great Britain has the most costly and the most inefficient railway service in the world On British railways toy trucks, designed to carry 4, 5, 6, or 8 tons of goods, are still common The truck most frequently seen holds 10 tons. British train-loads are supposed to average approximately 100 tons A train-load of 150 tons is considered to be very satisfactory. Mineral trains conveying 500 or 600 tons with the help of two engines are rare Toy trucks and toy trains involve an enormous waste of money and of labour An engine-driver can as easily run a heavy train as a light one. Numerous small trucks not only involve the handling of a large quantity of dead weight, but lead to a needless multiplication of shunters, book-keepers, checkers, repairers, etc While in the United Kingdom a train-load of 100 or 150 tons is considered satisfactory and a mineral train-load of 500 or 600 tons exceptional, American trains conveying 3,000 tons of minerals by means of a single engine are common, and train-loads of 5,000 tons are not unknown

The rapid development of the German industries was undoubtedly largely due to the excellence of their railway system, and particularly to the efficiency of the freight-handling branch In Germany, as in the United States, gradients were abolished, the permanent way was strengthened, and everything was done to enable the country to move heavier train-loads. The constant improvement in the mechanical outfit led to a gradual reduction in freights. While before the War British freights were by far the highest in the world and tended to increase to the disadvantage of the national industries and the national trade. German and American freights were comparatively moderate and tended to decrease The advantage of short distances possessed by the United Kingdom was destroyed by the inefficiency of the British railways That inefficiency was noticeable not only in their mechanical outfit, but in other directions as well.

While the railroads in progressive countries were run chiefly for the benefit of the national industries, the British railways were managed principally for the benefit of the shareholders or rather for their supposed benefit Many British railway boards were composed of superannuated capitalists not of able business men The actual management of the railways was left in the hands of a manager who received little or no assistance from directors who did not direct

Although the railways were nominally run for the interest of the shareholders, they were only too frequently managed in the interests of share-pushers and company promoters Insufficient attention was given to the development of industry. Lines and stations were unnecessarily duplicated and triplicated Hence, many small country towns have two or three competing stations In every town countless railway receiving offices were planted in the most expensive locations The politicians in Parliament encouraged cut-throat competition among the railways, and favoured the unnecessary duplication of lines, stations, etc. believing or pretending to believe, that competition would cheapen railway freights and fares. Of course, it did neither The unnecessary doubling and trebling of lines merely added to the dead weight of the railway capital upon which interest had to be earned. Therefore it added to the cost of transportation More-over the competing railways were quite as anxious to hamper their competitors as to develop their own system.

Consequently vast amounts of money were spent by them in economic warfare, to the disadvantage of both the shareholders and of the railway-using public.

The inefficiency of the British railways may be seen not only in their totally antiquated mechanical outfit and organisation and in the planless and confused arrangement of lines, but also by their book-keeping. A large and well-organised business requires clear and full data by which revenue and expenditure may be checked. All modern States possess a highly developed system of railway accounting by means of which the exact cost of moving a ton of freight over a given distance can be ascertained. No such figures exist for the United Kingdom. The railways themselves do not know what the cost of transportation comes to. The railway accounts are as confused as the whole railway system. In 1886 Mr J. S. Jeans read a paper on railway traffic before the Statistical Society in which he stated:

> The average transport charges may be ascertained for every European country except our own, as regards both goods and passenger traffic. In Great Britain the railways, whether by accident or by design, have hitherto contrived to make it impossible for the public to discover the average charges for the transport of either the one or the other, for any one railway or for the country as a whole.

The British railways have greatly damaged the industries of the country, not only by their general inefficiency, but also by their freight policy. They act on the principle, "Charge what the traffic will bear." Where there is little competition high freights are charged, where there is much competition low freights are charged. The result is that in some instances freights are outrageously high, and in others unduly low. The railways are so anxious to obtain traffic that they are willing to work at a loss. For instance, they carry at a loss goods around the coast in order to prevent these goods from going by coast-wise shipping. Of course, they compensate themselves for such a loss by charging unduly high rates on other goods Therefore, they harm at the same time the coast-wise shipping trade and the general body of home producers From the national point of view it is, of course, uneconomic to divert freight from the natural route around the coast to an artificial route

In order to attract traffic, railways will not merely carry goods but fetch, store, and deliver them However, as they do not charge separately for storage etc, those who take advantage of these facilities are benefited at the cost of those traders who wish merely to forward goods by train

The railways have damaged British industry and trade very seriously by favouring the foreigner, acting on the principle that foreign goods can be induced to come to the country only if particularly cheap freights are offered for their conveyance According to the law they could not offer to carry foreign goods more cheaply than British goods So the railways got round the provisions of the law by differentiating unduly in respect of large and of small quantities Foreign farm produce, manufactures, etc, arrive in bulk, while British farm produce, etc, comes to the railroad in comparatively small quantities. The result is that foreign goods were dumped in the country, and British farmers and manufacturers were frequently unable to compete with their foreign rivals

An improvement of the British railway system can be hoped for only if the railways are placed under unified control, if the system which has divided the country into numerous railway provinces is abandoned, and if a truly national and unified system of transport is created out of the confused and wasteful competitive system That was recognised by various official Commissions and Committees.

For instance, the Select Committee on Transport, which reported in 1918, stated

> Evidence has been given by members of the Railway Executive Committee to the effect that if a policy of unification of management, combined with a pooling of assets of the railway companies, were adopted, it should be possible to give the public better service and facilities at less cost to the railway system
>
> From a purely technical point of view, it appears, therefore, to be desirable that there should be a unification of ownership, not merely unification of management, of the main railway systems, because, while unification of management would undoubtedly be a great improvement upon pre-war conditions, and would assist materially to secure more efficient organisation and management, it would not, without unification of ownership, permit of the use of the assets of the combined system to the best advantage, nor allow of the provision of new and costly equipment without constantly giving rise to undesirable financial negotiations and difficulties. Whether the State or one large joint-stock concern owned the railways would be immaterial from this point of view, the essential conditions are that there should be single ownership and single management.

Sir Eric Geddes announced on March 17, 1919, that the British railway system would be electrified as soon as possible. The electrification of the lines should lead to an enormous economy in coal, and especially in labour However, it must not be expected that electrification alone will solve the difficulties of the British railway problem, for other nations also may electrify their railways, and they may be able to obtain electric power more cheaply than the United Kingdom from waterfalls Unfortunately, the United Kingdom has practically no waterfalls, while millions of horse-powers may be derived from waterfalls in France, Switzerland, Italy, Sweden, and Norway, and particularly from the gigantic falls in the United States and in Canada. The United States intend electrifying not only their railways, but also their factories, as far as possible. Great Britain would therefore still be behindhand in economic railway transportation unless the railway system is unified and unless the railways are run for the benefit of the nation, and especially its industries, instead of being run for the advantage, or the supposed advantage, of shareholders, share-pushers, promoters, financiers, lawyers, and other hangers-on. Heavier rails will have to be laid, the permanent way will have to be improved, tunnels will have to be widened, bridges must be strengthened, docks and warehouses have to be improved, uniformity of locomotives and of rolling stock must be created as far as possible, a uniform system of book keeping and accounting must be provided, the best experts must replace the aged railway directors. The modernisation of the British railway system will take time and will cost vast amounts of money, for the neglect of decades must be made up for. A gigantic expenditure is necessary, but that expenditure should bear fruit and should place British industry and trade on an entirely new basis.

The great Lord Bacon wrote: "There are three things which make a nation great and prosperous: a fertile soil, busy workshops, and easy conveyance for men and commodities from one place to another." Waterways are of considerable importance for the inland transport of freight. In certain cases transport by water is preferable to transport by rail.

One of the greatest advantages of transport by water lies in this, that a given amount of power is far more effective in hauling a load by water than in hauling it on land. A horse can haul on a level road and at a speed of three miles per hour about 2 tons. On a level railroad it can pull about 15 tons. On a canal it can pull from 60 to 100 tons. In other words, transport by canal involves an enormous saving of power, which means an enormous saving of coal, or whatever the means of propulsion may be.

There are further advantages in using waterways for inland transport The cost of barges and boats per ton of load-room is far smaller than the cost of railway trucks. It costs roughly five times as much to construct 1,000 tons of railway load-room as 1,000 tons of barge load-room, while repairs and upkeep are approximately equal for barges and trucks

The construction of canals through level country is, as a rule, no dearer than the construction of a railway line of equal length Moreover, a canal mile can carry a far larger quantity of traffic than a railway mile

In view of the fact that the construction of canals is no dearer than the construction of railways, provided the ground is favourable, and that canals can carry a larger quantity of freight per mile at lower cost, it is obvious that canal transport offers very great advantages over transport by railroad That was clearly recognised in Germany. In that country the State possessed practically all the railways Nevertheless, it diminished its profitable monopoly by furthering the construction of canals with the greatest energy The result of this policy was extremely favourable to the German industries In Germany coal and iron are separated by enormous distances. The iron ore of Alsace-Lorraine was smelted chiefly in the Westphalian district about Essen and Dortmund The development of the great German iron and steel industry would have been impossible had coal and iron been forced to rely on transport by rail Freight charges by railway were in Germany exceedingly low before the War, but they were about twice as high as the corresponding charges by waterway

In transportation by waterway, as in transportation by land, the greatest cheapness is effected if goods are moved in large quantities Transport by large ships and barges is far more economical than by small and medium sized ones. Hence the Germans constructed very deep and broad canals on which ships and barges of great holding capacity could be employed Between 1887 and 1912 the number of ships and barges of less than 100 tons used by the inland waterways of Germany increased from 11,281 to 11.843 They remained stationary During the same period ships and barges able to carry from 250 to 600 tons increased from 1.271 to 6.027, or fivefold, and ships and boats able to carry more than 600 tons increased from 220 to 3.073, or practically fifteenfold On the Rhine ships and barges of a loading capacity of 2 000 tons and more can be seen every day. Frequently a single tug hauls a string of these gigantic barges Thus a single engineer can move up or down river 10,000 tons of goods, while on British canals toy barges of 30, 40, or 50 tons, hauled by horses, are frequently seen British barges able to transport 100 tons or more are rare

The importance of the German canal and river system for inland transport may be seen by the little-known fact that before the War the German inland fleet was actually larger than the German merchant marine According to the official statistics' the tonnage of the German inland fleet increased from 1.658,266 tons in 1882 to 7,394,567 tons in 1912 During thirty years it had increased more than fourfold The German merchant marine had in 1912 a tonnage of 4.711.998 gross and of 3,023,725 net.

Of course, transport by inland waterway is comparatively slow It is therefore particularly useful for those goods which are of little value, which must be transported cheaply, and in respect of which rapidity of conveyance is of little account In Germany and in other countries in which inland water transport is highly developed, the canals and rivers are chiefly employed for the carriage of ore, stone, sand, timber, coal, grain, petroleum, hides, cement, bricks, manure, and so forth.

From a national point of view the advantage of an efficient canal system is a twofold one. In the first place it makes possible cheap carriage for those goods for which cheap carriage is essential. In the second place it eases very greatly the position of the railways, which otherwise would be encumbered by vast quantities of bulky material which block the permanent way.

A century ago England had the finest and the most highly developed canal system in the world. Its canals were the envy of all other nations. The railway era began. The railway promoters and managers wished to secure the monopoly of inland transport, and they began a campaign of canal destruction, which unfortunately was permitted by Parliament. The prosperity and efficiency of the British canal system was destroyed by the railways. In some cases the canals were made unprofitable by deliberate cut-throat competition. In other cases the railways acquired vital links of the canals and allowed these to fall into decay. Numerous canals were "repaired" out of existence. Others were blocked for traffic by the construction of low bridges or of railway embankments and lines. Sir Maurice Fitzmaurice, the Chairman of the Canal Control Committee, stated on October 8, 1918, before the Select Committee on Transport.

> The Report of the Royal Commission on Canals issued in 1909 fully went into the reasons which, with few exceptions, have brought the waterways in this country into the deplorable state in which they exist at the present time. The Report stated that "these waterways have suffered through long neglect and errors in legislation." It must be remembered that canals were at one time very prosperous, but, generally speaking, the construction of railways deprived the canals of much of their traffic and revenue. After the general prosperity of canals came to

an end it was difficult to obtain money for improvement of canals, and consequently, with one or two exceptions, the canals are very much in the same condition as they were eighty years ago.

The total mileage of the important waterways in the country is 2,500 miles, of which 1,226 miles are under the control of the Canal Control Committee. A large number of these navigations are comparatively short lengths, such as the Birmingham and Warwick Junction Canal, under 3 miles, Loughborough Navigation, under 10 miles; Warwick and Napton Canal, under 15 miles, Regent's Canal, under 11 miles. For the 1,226 miles under the Canal Control Committee there are twenty six canal companies. It is obvious, when the canal mileage is split up into a number of small companies, it is impossible for them to be economically managed, or for them to work satisfactorily. Such small companies cannot, of course, afford to pay men with sufficient qualifications to look after the navigation, and they are, as a general rule, neglected.

If goods go from the Thames to Birmingham by canal, they pass over the Grand Junction Canal, Oxford Canal, Warwick and Napton Canal, Warwick and Birmingham Canal, and the Birmingham and Warwick Junction Canal, finally arriving on the Birmingham Canal. If goods go from Liverpool via Manchester to the Humber, they pass through the Bridgewater Canal, Rochdale Canal, Calder and Hebble Navigation and the Aire and Calder Navigation. The Royal Commission recognised that the present system of small canal companies was impossible if canal traffic in this country were developed.

Obviously the British canal system wants reorganisation if it is to be made once more efficient.

Although the British canals and waterways may be immensely improved, it cannot be expected that they will ever be able to compare in efficiency with those of the great Continental countries, such as Germany. Germany has become the foremost European country as regards inland water transport not only owing to the energy and foresight of the Government, which has spent many millions on the regulation of rivers and the construction of canals, but also, and chiefly, owing to the natural conditions of the country The whole of North Germany is a gigantic plain. One can travel from Cologne on the Rhine to the Russian frontier by railway without passing through a single tunnel Moreover, the gigantic North German plain possesses a number of gently flowing wide and deep rivers which follow a parallel course, and which invite connection by canals The natural conditions are therefore obviously totally different in the two countries The United Kingdom has no large plains and has no large rivers. Natural waterways which can be used by shipping without constructing locks are lacking, and water itself is rather scarce Sir Maurice Fitzmaurice correctly stated in his evidence

> If you take a canal from here to Birmingham, you have a lock about every mile, and there is just as much time spent at those locks as there is in carrying the stuff between them, or very nearly as much, and sometimes, if you are going into the Birmingham district a great deal more time is spent at the locks than in carrying the stuff between the locks' Until you can increase the speed at which the stuff is carried by canal I do not think you will do very much good To increase the speed you must have fewer locks, and you must have boats with some kind of mechanical propulsion either steam, petrol, or oil driven boats. The moment you get beyond a speed of three miles an hour you have to renew the banks of your canals and revet them with stone, because otherwise they will not stand the wave Then, as regards the locks, I am quite satisfied in my own mind that if you could make a fresh start with the present canals nobody would put locks at every mile Instead of having locks at every mile you would try to contour the canal a bit more, until, instead of having a lift of 6 feet at a lock, you get to a lift of, say, 30 feet, and then I should do away with the lock and have a lift, and save a very great deal of time It is very easy for me to talk about that, but it is very difficult to form the least

> estimate in my mind of what improvements of that kind would cost—I could not possibly do it—but that would be the line upon which I think it ought to go.
>
> Take the Oxford Canal, or even the Grand Junction Canal. The dredging in those canals is a perfect disgrace. I have had cross-sections made of the Oxford Canal at the present time all through, and it is really a matter of the greatest difficulty for boats to go along it, the dredging is so behindhand. They tell me that the life of the bottom of a boat on the Oxford Canal is very short indeed, because it is principally scraping along the bottom.

The British canal system has suffered not only from official neglect, from the hostility of the railways, and from the fact that it has never been organised on large national lines, but also from mismanagement. When the railway era began the canals ought to have amalgamated, and everything ought to have been done to increase their efficiency. Instead of this many canal companies and canal owners considered the position of their properties hopeless, and neglected them. One of the most efficient British canals is the Aire and Calder Canal. Transportation along that canal is so cheap that the railways cannot compete with it. With regard to that canal Sir Maurice Fitzmaurice stated in his evidence:

> In the case of a canal such as the Aire and Calder, the service is probably one of the most efficient in the world, and the carriage of coal is effected on such conditions that railways cannot compete with it.
>
> One very peculiar advantage of the canal was that they possessed a man named Mr. Bartholomew, who practically ran the canal company for a long time, and made it what it was. He is still alive, but is now not able to do anything. He was a very far-seeing man, and made them, instead of paying dividends, put their money into the property. They paid moderate dividends, but all the time they kept putting money into the property. It is a canal which goes through a peculiar district which is rich in coal,

and it goes up to a very large city, Leeds, so they have every advantage, together with the port of Goole, from whence they go straight down to Hull They do a lot of shipping at Goole

The United Kingdom can never hope to create a system of waterways and canals similar to that possessed by Germany At the same time, the existing canals and waterways can be vastly improved, to the very great advantage of trade and industry and of the railways themselves, for they will relieve their congestion Of course, it will be a very expensive matter to make up for the neglect of decades. The railways, the traders, and the general public, will have to be educated how to use the canals. However, the re-creation of the canal system is not a wild speculation, for the cost of its reconstruction and of transport is calculable

Those who deplore the congestion of the British railways and their exorbitant freight charges have often recommended that an alternative and competitive transport system should be created by making fuller use of the roads. The idea that the British transport problem can be solved by putting powerful automobiles on the roads is probably vain. The wear and tear of tyres and of the machinery, and of the roads themselves, would probably be so enormous that heavy traffic could not be handled by them in competition with the railways Moreover, the British roads, unlike the French and German roads, are not wide and straight, and therefore easily usable for heavy traffic, but are, as a rule, narrow and full of curves The reconstruction of the road system, so as to make it usable for heavy traffic, would probably be more costly even than the reconstruction of the British canals and waterways.

Although the roads will scarcely be able to compete successfully with the railways in handling heavy traffic, especially if the mechanical outfit of the railways should be greatly improved, they may contribute considerably to the solution of the traffic difficulties. In the first place, a well-organised service of road vehicles will act as an invaluable feeder to the principal means of transport. In the second place, light railways may here and there be constructed along the roadways, similar to those which may be found on the Continent and to those which the British Army has constructed in France.

Recently proposals have been made to empty the canals and to convert them into roads and railroads. That is, of course, quite impracticable. One cannot run traffic through dry ditches which in case of rain would be converted once more into rivers and canals.

Those who have the improvement of the inland transport system at heart should endeavour to develop all the national means of communication simultaneously and harmoniously. The United Kingdom is most favourably situated for transport purposes. It is deeply intersected by the sea. The inland portions of the country can easily be reached from the shore. By the harmonious development of railways, canals, road traffic and coastal shipping, it should be possible to create for the United Kingdom and its industries transport conditions which will favourably compare with those possessed by any other country.

CHAPTER XX

THE BRITISH MERCHANT MARINE AND THE EMPIRE· SHOULD THE EMPIRE TRADE BE RESERVED TO EMPIRE SHIPPING?

THE British Empire is scattered all over the globe It occupies a peculiar and a unique position Alone among the States of the world it is a Sea Empire Not land routes, but the seas, connect the outlying portions and the Motherland

The sea routes are the arteries of the Empire They furnish the life-blood to the different parts It is as necessary for the British Empire to dominate the sea routes which connect London and Liverpool with Montreal, Sydney, Cape Town, Bombay, etc , as it is necessary for the United States to dominate the railways which connect New York with Chicago and San Francisco The Power which rules the sea holds in its hands the fate of the British Empire and of its inhabitants, exactly as the Power which dominates the great railways of the United States controls the fate of that country

The United Kingdom depends for its indispensable food and raw materials on imports by sea The domination of the seas by a foreign Power, or by a combination of foreign Powers, would jeopardise not only the continued existence of the British Empire, but would threaten the life of the densely populated Motherland as well The peculiar and unique position of the British Empire requires the maintenance of its naval and maritime supremacy. Its political and economic security requires the possession of a predominant fleet and of a predominant merchant marine. The Final Report of the Board of Trade Committee on Shipping and Shipbuilding expressly and emphatically stated in paragraph 5: " The maritime ascendancy of the Empire must be maintained at all costs "

Voices in England and abroad have arisen demanding that the great settlement of the War should bring about " the freedom of the seas." That phrase is a vague one, and it has a history The Roman land empire attacked the Carthaginian sea empire in order to establish the freedom of the seas, and it subjected not only all the then known lands, but all the seas as well, to the military despotism of Rome Napoleon, when endeavouring to subject the world to himself, asserted that he fought England for the benefit of all mankind, that he wished to establish " the freedom of the seas " The same claim of disinterested benevolence was raised by William II and his statesmen, Generals, and publicists Germany also made war upon the world for " the freedom of the seas."

The prosperity—nay, the existence—of the British Empire requires that the British people should continue to possess a predominant navy and a predominant merchant marine, for their possession alone can ensure the political and economic freedom of the widely scattered British nation

The problem which is summed up in the loose phrase " the freedom of the seas " has a twofold aspect, a military one and a civil one The two should not be confused, but should be considered separately

The problem of the freedom of the seas in time of war is a problem in which the views of the ablest naval commanders and strategists should be authoritative • The problem of the freedom of the seas in time of peace is a problem in which the views of business men, and especially of those of the shipping community, should have peculiar weight. The latter only will be considered in the following pages.

Before the War the United Kingdom followed the policy of freedom of trade and of freedom of navigation, while other nations endeavoured to protect and foster both their trade and their shipping in various ways For decades British statesmen had voiced the views of British shipowners in demanding absolute freedom for their shipping, absolute equality in the treatment of ships in all countries and in all ports, the abolition of all artificial encouragements and restrictions which entrench upon the freedom of navigation In the past Great Britain and the British Empire have flung their gates wide open to all comers, have invited all, and have treated all nations alike, but that policy has not been reciprocated Will the nations of the world meet the desire of Great Britain and of the Empire and abolish their policy of artificially fostering their own merchant marine, to their own disadvantage and to the advantage of Great Britain ?

The navigation policy of the utmost liberality and generosity which Great Britain pursued previous to the War did not meet with any reciprocity. On the contrary, the nations of the world proceeded to limit from year to year more severely the field left to the British merchant marine. While the United Kingdom followed the traditional policy of free navigation and no favour on the sea, which is dear to its shipowners, other nations also followed a traditional policy which is equally dear to them and which is absolutely opposed to the British policy. Unfortunately there is no indication that they intend to abandon it On the contrary.

The War has opened a new chapter in the world's history. The traditional navigation policy of Great Britain was based on pre-war conditions. British economic policy should be based, not on economic theory and on the practice of the past, but on the practical requirements of the present and of the future. British navigation policy should be in accordance with practical facts, and should change in accordance with changing conditions. Now, it must be clear to all who have eyes to see that navigation conditions have rapidly been changing to Great Britain's disadvantage previous to the War and during the War, and that they are likely to continue changing to the disadvantage of British shipping after the War.

Before the War Great Britain's pre-eminent position both as a shipowner and as a shipbuilder was fast declining. The Report of the Committee of the Chamber of Shipping of the United Kingdom and of the Liverpool Shipowners' Association gave on p. 82 the following figures:

PERCENTAGE OF STEAM TONNAGE

	1904 *Per Cent.*	1911. *Per Cent.*
United Kingdom	52·03	47·79
British Dominions and Possessions	4·01	4·29
	56·04	52·08
Foreign countries	43·96	47·92
	100·00	100·00

With regard to shipbuilding, the Second Report of the Board of Trade Departmental Committee on Shipping and Shipbuilding provided the following statistics in paragraph 10:

PROPORTION OF BRITISH OUTPUT OF SHIPPING TO WORLD'S OUTPUT.

	Per Cent.
1892-94	81·6
1895-99	72·8
1900-04	59·9
1905-09	61·0
1910-14	61·9

Between 1904 and 1911 the proportion of British shipping decreased from 56·04 per cent. to 52·08 per cent., while the proportion of foreign shipping increased from 43·96 per cent. to 47·92 per cent. Between the periods 1892-94 and 1910-14 the proportion of British shipbuilding to the world's shipbuilding decreased from 81·6 per cent. to 61·9 per cent., while that of foreign nations increased from 18·4 per cent. to 38·1 per cent. These figures are ominous. They clearly show that before the War Great Britain was rapidly losing to foreign nations her pre-eminence both as a shipowner and as a shipbuilder. The tendency is unmistakable and indisputable, and should serve as a warning.

Before the War the British Empire possessed approximately 50 per cent. of the world's shipping, of which the bulk was domiciled and managed in the United Kingdom. At first sight it would seem that the British people possessed an undue proportion of the world's shipping, that foreign nations had some justification for complaining about England's maritime predominance. However, if we look a little closer, we find that there was considerable justification for England's pre-eminence on the sea. Examination of the statistics of the world's foreign trade will reveal the fact that the percentage of the Empire shipping stood before the War in extraordinarily close relation with the proportion which the British Imperial trade bore to the foreign trade of the whole world.

Before the War the British Empire contributed approximately 50 per cent. to the world's tonnage. It is true that a considerable proportion of British tonnage was employed in purely foreign trade. However, as an offset there was a not unsimilar percentage of British trade which was carried in foreign vessels.

If, through a change in England's navigation policy, British shipping should lose a considerable portion of the foreign trade which it has carried hitherto, that loss would probably be offset more or less exactly by the acquisition of that part of the British Empire trade which was carried by foreign nations.

In the course of the War the British mercantile marine has been very seriously weakened and reduced. During the same time the merchant marines of some of the neutral States and of those belligerents which were less exposed to attacks by submarines have been vastly strengthened. Thus the pre-eminence of the British merchant marine has been very materially diminished and foreign competition has become more severe, and it is likely to be greatly accentuated in the future. That is admitted by all competent observers. The Final Report of the Board of Trade Committee stated in paragraphs 66 and 67:

> In the case of certain foreign countries anxious to develop their merchant marine the evils of the tonnage situation have not been unmixed. Neutral shipowners who have not been subject to the restrictions imposed on British shipowners have been able to amass large profits which will enable them to engage in severe competition with the latter after the War. There has been great shipbuilding activity in foreign countries, notably in the United States, Japan, and Holland. Japanese encroachment in our Eastern trades is already serious and will become more serious.
>
> Competition of the most formidable character is to be anticipated from the United States, where marine enterprise has received a great stimulus during the War from the acute tonnage stringency prevalent throughout the world, and from orders on a large scale placed in American yards by foreign countries, and not least by this country.
>
> The result of the factors described above will be that the lead of this country in the world's carrying trade will, by the end of the War, have been diminished, if not lost; and unless British shipping is enabled at the outset of the Reconstruction period to take full advantage of the new situation, it may fall behind in the competitive race, and

definitely lose the ascendancy which has been the keystone of the Empire and a condition of our industrial existence.

With regard to the future position of British shipbuilding, the Second Report stated in paragraph 20:

> Competition with the British shipbuilding industry from many foreign countries will be materially increased This war has shown foreign nations the advantages of a national mercantile marine, and the value of encouraging national shipbuilding facilities Much new shipbuilding plant has been put down, and the experience which is being obtained by foreign countries during the War is likely to enable them to compete more nearly on even terms with British shipbuilders. There is strong reason to believe that shipbuilders in the United States will be able to obtain iron and steel materials as cheaply as British firms, if not more cheaply, and that consequently competition will become severe

Of the two Reports quoted, the Final Report was signed in March, 1918, and the Second Report in July, 1917. Since these dates the position, both for British shipping and for British shipbuilding, has become materially worse.

Those who assert that the British merchant marine has become supreme under the policy of freedom of trade and of navigation, and owing to that policy, are mistaken. In the first half of the seventeenth century the Dutch were the world's shippers and carriers A large part of England's foreign trade was carried in Dutch bottoms. The maritime pre-eminence of Holland was destroyed, and that of England was established, by Oliver Cromwell by means of his Navigation Acts, and the wisdom of these Acts was unhesitatingly acknowledged and praised by the father of Free Trade, Adam Smith, in his *Wealth of Nations*

In the first half of the nineteenth century, during the era of wooden ships, the United States rapidly encroached upon England's supremacy as a shipowner and a shipbuilder largely because America was more advantageously situated for the supply of timber, etc. In 1858-61 the United States had drawn practically level with England in shipbuilding. Now that country is more advantageously situated for providing steel.

When the era of the iron steamship opened, England was by far the greatest manufacturing country in the world. She produced more iron and more machinery than all other countries combined. The supremacy of England's shipping was largely due, not to Free Trade, but to her former supremacy in the making of iron and steel and in the foreign trade. The Final Board of Trade Report stated in paragraph 122:

> The modern position of the United Kingdom as the great shipowning and shipbuilding country of the world dates from the substitution of steam for sailing power, and of iron and steel for wood. In 1850, when then there were still few steamers, the total mercantile tonnage of the Empire amounted to rather more than 4,000,000 tons net, and that of the United States, including only vessels registered for the foreign trade, to as much as 1,500,000 tons. Fifty years later the tonnage of the Empire had grown to over 10,500,000 tons net, whilst that of the United States had declined to less than 1,000,000 tons. Similar tendencies were apparent in the shipbuilding of the two countries. For, once the discoveries of the industrial revolution were applied to the instruments of sea transport, the resources of the United Kingdom in coal and iron and their proximity to good shipbuilding sites furnished the means for a great expansion, whilst the energies of the United States were absorbed in the development of their vast western territories.

During the last decade or two England has lost her supremacy in the production of steel and iron to Germany and the United States. Before the War the United States produced three times as much iron and steel and Germany twice as much iron and steel as Great Britain. Large quantities of shipbuilding materials were imported from abroad, as may be seen from the Second Board of Trade Report, paragraphs 28 to 45 From the same source we learn that large quantities of the materials imported, especially from Germany and the United States, were from 25 to 50 per cent cheaper than the corresponding British materials British shipbuilding became dangerously dependent upon foreign steel.

The prosperity of the British shipping industry and its ability to compete with other nations depend largely upon the efficiency of the British shipbuilding industry The United States have shown that, notwithstanding higher wages, they can produce goods more cheaply than Great Britain Steel is no dearer in the United States than in Great Britain The methods whereby the United States have become supreme in the production of motor-cars, locomotives, typewriting machines, etc , may be applied also to shipbuilding That, at least, is the opinion of many eminent American experts

American business men, American statesmen, and the bulk of the American people, do not wish England to carry their trade Like the Englishmen of Cromwell's time, they do not wish to be dependent on foreign ships They wish to do their own shipping They seem determined to make a strong bid for supremacy in shipbuilding and shipping They have begun the construction of a gigantic merchant marine. The Americans are an energetic and a pertinacious people, and they will scarcely be turned from their determination by British representations and by British demands to abolish all those discriminations which favour American shipbuilding and the American shipping trade. Those who believe that other nations ought to be quite satisfied that Great Britain dominates the shipping trade hold very insular views.

While the competition of the United States is dangerous owing to the extraordinary power and efficiency of the gigantic American iron and steel industry, and owing to the passionate maritime ambitions of the American people, the competition of Japan is dangerous owing to the lowness of Japanese wages and owing to the high maritime ability of the Japanese people. Japan is as overpopulated as the United Kingdom Her policy of promoting shipbuilding and the expansion of her merchant marine by heavy subsidies and all other means available seems unlikely to be abandoned for a policy of free trade and of free navigation for England s benefit.

The Americans consider that they ought to handle the trade of North and South America which lies at their doors The Japanese are of opinion that the trade of the Far East should be their special preserve Now, the trade of the two Americas and of the Far East constitutes the most important part of the British shipping trade This may be seen from the following figures, which are taken from paragraph 160 of the Final Board of Trade Report:

BRITISH STEAM TONNAGE ENGAGED IN FOREIGN TRADE.

		Tons Net.
North and South America	..	3,502,000
East Indies and Japan	..	2,543,000
All other parts of the world	..	2,845,000
Total	..	8,890,000

The Americans and the Japanese desire to encroach on the two most valuable sections of the British shipping trade From their point of view their policy is a logical and a natural one Before long British maritime supremacy may become seriously threatened.

The firmly established policy not only of the United States and of Japan, but of practically all the non-British

States, has been to foster their merchant marines by various means, and particularly by reserving to their own shipping the so-called coasting trade. The Final Board of Trade Report stated in paragraph 293:

> Although the coasting trade of the United Kingdom and the trade between different parts of the Empire were open to the flags of all nations, British vessels were excluded from the similar trades of the principal foreign countries, including Russia, France and the French possessions, Holland and the Dutch possessions, Spain, the United States and the American possessions, Brazil, Argentina, and Japan

It seems improbable that all the nations enumerated will abandon their firmly established navigation policy, throw open their coasting trade to British shipping, and abolish the various measures whereby they have endeavoured, and successfully endeavoured, to build up merchant marines of their own But even if the direct fostering of foreign merchant marines should be discontinued—an event which is very unlikely—discrimination against British shipping might be effected by indirect means, by the manipulation of railway tariffs, and by all the other expedients which Germany used before the War; by bounties and drawbacks given by powerful combinations, such as those which were given by the great German kartels; by preferential banking arrangements; by the manipulation of fuel prices; by different standards of safety; by the imposition of certain conditions as to seamen's wages, food, accommodation, etc.

As all evidence points to the fact that other nations are determined to foster their merchant marine by the direct and indirect means enumerated with redoubled energy, with the object of establishing powerful shipping and shipbuilding industries at the cost of Great Britain and of the

British Empire, the time has arrived for reconsidering the British navigation policy.

English statesmen and the English shipping interest have favoured the policy of freedom of trade and of the seas They have opened the harbours and the trade of the Empire to all comers, and they are willing and anxious to continue that generous policy However, if other nations choose to foster and protect their own shipping, to harass British shipping, and to encroach in every possible way upon the British shipping trade, they cannot complain if Great Britain and the British Empire follow their example, although they would do so most reluctantly The Final Board of Trade Report stated in paragraph 278.

> Since the middle of last century the navigation policy of this country has been based on the great ascendancy of the British mercantile marine and the widespread character of our trade which made protection both unnecessary and undesirable Our object was to obtain free access to the ports and the trade of foreign countries It was therefore inexpedient to give British shipping privileged treatment at home, since such action could only have afforded foreign countries an excuse for similarly differentiating in favour of their own vessels

The liberal British policy has unfortunately not found a response Reciprocity is the soul of relations between men and between nations If foreign nations insist on maintaining and increasing their exclusive policy, they compel and justify the British peoples in doing likewise.

The power and the prosperity of the national shipping industry depends upon the power and prosperity of the productive industries in general which create the traffic. Vast national production leads to a vast national foreign trade which can be reserved to the national shipping The Final Board of Trade Report stated in paragraphs 127 and 128:

If we look to the future, the prosperity of British shipping is seen to depend on two conditions of vital importance:

(1) The maintenance and extension of British industry; and

(2) The development of the resources of the Empire as a whole

In the Empire we possess resources at least equal to those of any other nation, and their development after the War would give a powerful stimulus to British industry, and therefore to British shipping.

In the past the maritime ascendancy of this country has depended primarily on the industrial strength of the United Kingdom, with the great flow of trade to which it gave rise; and unless similar conditions obtain in the future, it will be difficult to maintain an adequate mercantile marine.

At present the United States are the wealthiest country in the world. They have the largest foreign trade. They believe that they ought therefore to have also the largest merchant marine. However, the latent resources and possibilities of the British Empire are far greater than those of the great Republic. According to the Statesman's Year-Book, the territory of the British Empire compares as follows with that of the United States and some of the other great nations:

	Square Miles
British Empire (1914)	12,808,994
United States and Possessions	3,574,658
Brazil	3,218,991
Argentina	1,153,119
China	3,913,560
Germany (1914)	208,780

The British Empire is approximately four times as large as the United States and their outlying possessions, and is larger than the United States, Brazil, Argentina, China, and Germany combined. It extends through all climes. Its potential wealth is far greater than that of the American Republic, and its potential wealth can be converted into actual wealth by vigorous development. The United States have gone ahead of the British Empire in white population, production, wealth, income, and trade, owing to the vigorous development of the country. While the United States had recently 251,984 miles of railway, the British Empire, though four times as large as the United States, had only 134,984 miles of railway. Owing to the use of the most perfect labour-saving machinery, the average worker in the United States produces about three times as much as the average worker in the United Kingdom.

The vigorous development of the Empire's resources by the improvement of harbours and waterways, by the building of railways, by the peopling of the vacant spaces, and by the modernising of the methods of production, should treble and quadruple the wealth productivity and foreign trade of the Empire in a very short space of time. During the next decade or two the foreign trade of the world should increase at an unprecedented rate, and the Imperial trade should become infinitely larger and more valuable than that of the whole American continent. The prospective increase of the Empire trade alone should amply make up for that part of the international trade which British shipping may lose to the various nations which seem determined to wrest it out of British hands.

The British Empire possesses not only the vastest territories in the world, the exploitation of which has scarcely begun, but it has resources which are of particular value to the shipping interest. The British Empire is essentially a sea Empire. Nearly all its great towns lie on the sea, and it possesses a large number of the best commercial harbours and coaling stations along the great trade routes of the world. That is an exceedingly precious resource.

If the Empire should be adequately developed, it ought to produce more than half of the world's coal and iron, and more than half of the world's exports of food and of raw materials. The power of reserving the Empire trade and the free use of the Empire harbours to the shipping of the Empire and of those nations which treat British shipping on an equality should cause other nations to hestitate in differentiating against the British Empire and its mercantile marine. If the foreign nations insist upon their restrictive policy, the British Empire may have to follow suit. The British merchant marine, instead of developing the world's trade as hitherto, may be forced to develop the Empire trade, and the Empire may benefit greatly from that change of policy. Economic internationalism has, perhaps, had its day. The Empire might be a great gainer by such a development. The Report of the Chamber of Shipping of the United Kingdom and of the Liverpool Steamship Owners' Association stated:

> The British shipowners generally fully realise that, important as is that industry to the nation and the Empire, there are national and Imperial considerations of deeper and greater importance than its prosperity. The only sure foundation for the future success of the British mercantile marine must be the safety and the prosperity of the nation as a whole, and the policy to be adopted must be that which is best calculated to attain that end, whatever may be the disadvantages it imposes on British shipping.

Of course, no one contemplates lightly the possibility of the British Empire adopting an exclusive policy on the seas. However, if the freedom of navigation should unhappily be diminished or destroyed by the action of foreign nations, it may be found that the British Empire would not be the principal sufferer, that, on the contrary, those nations may chiefly be hurt which have caused

England to abandon her policy of freedom and equality on the seas

The British Empire possesses along the world's great trade routes a large number of harbours which serve as halfway houses to the world's shipping. The continued differential treatment of shipping by foreign nations would logically lead to preferential treatment on the part of the British Empire in two ways In the first place, it would lead to the Empire reserving the inter-Imperial trade, the so-called Imperial coasting trade, to British shipping In the second place it might, and possibly would, lead in some form or other to preferential treatment of shipping in the Empire harbours It seems unlikely that foreign nations, desiring to develop their shipping, will lightly expose themselves to a policy of discrimination and retaliation on the part of the British Empire

It should be observed that there is a great difference between the foreign trade of the United States and of Great Britain The United States are practically self-supporting for the food and raw material upon which depend the life of the people Their imports are mainly luxuries. America's foreign trade consists principally of the exports of their surplus The United Kingdom on the other hand, is in the main an importing country The imports of Great Britain exceed very greatly the exports of the country, and British imports consist principally of food and of indispensable raw materials, such as cotton, wool, timber, leather, copper, iron ore, etc. The instinct of self-preservation may compel Great Britain to adopt a policy which favours the maintenance of the national shipping. The position of the country, its absolute dependence on foreign imports, may compel it to insist that British imports should be carried as far as possible by British ships, for the nation cannot safely be allowed to become dependent for its indispensable imports of food and raw material upon the good-will of foreign nations and of their merchant marines. The experience of the War has shown even to the blindest the danger of following any other course.

The preservation of England's maritime pre-eminence is necessary, not only for reasons of security, but also on financial grounds As England's imports vastly exceed the country's exports, there is a heavy balance to be paid for Imports are paid for by exports of goods, or of gold, or by services rendered to foreign nations As Great Britain has sold the bulk of her foreign investments during the War, the dividends and interest payable on these foreign investments no longer help in paying for the great excess of imports over exports. There is every reason for believing that imports into Great Britain will continue vastly to exceed exports from Great Britain Consequently the balance in favour of foreign nations can be liquidated only by means of services rendered by England to foreign countries. Among these services shipping stands foremost A serious diminution of England's maritime preponderance would endanger not only the security of the nation both in time of war and peace, but might in addition create a very serious financial problem.

CHAPTER XXI

THE BRITISH LAND AND HOUSING PROBLEM IN THE COUNTRY DISTRICTS

As a rule, people discuss the land problem and the housing problem separately. However, the two are so inextricably interwoven that they ought to be discussed together. The only difference is this, that in the country the land problem is more prominent, while in the towns the housing problem claims the most urgent attention.

Whether the land and housing problem is satisfactorily solved with regard to the agricultural districts may be easily seen from the populousness of the country parts, and especially from their productivity, for the main purpose of agriculture is to produce food. If we apply this test to the rural districts of the United Kingdom, it is obvious that the land and housing policy has been an utter failure. From decade to decade the country population has diminished in the most lamentable manner, and at the same time the productivity of the soil has shrunk, while during the same period the agricultural productivity of other countries which are similarly situated as Great Britain has vastly increased. The flight of the people may be seen from the figures given on the following page. The flight from the country, which is eloquently attested by the figures given, has had a most disastrous effect not only upon British agricultural production, but also on the national physique, on the health and strength of the race. They show that the British land system urgently cries for reform, that its maintenance is impossible.

NUMBER OF MALE AGRICULTURAL LABOURERS.

Year.		*In England and Wales.*	*In Scotland.*	*In Ireland.*	*In the United Kingdom.*
1851	..	1,097,800	140,200	850,100	2,088,100
1861	..	1,073,000	125,900	602,200	1,801,100
1871	..	902,800	111,000	509,700	1,523,500
1881	..	807,600	91,800	293,300	1,192,700
1891	..	709,300	85,100	251,700	1,046,100
1901	..	583,800	73,800	212,200	869,800
1911	..	622,300	71,500	192,100	885,900

Of course, the shrinkage of the rural population is due in part to the introduction of labour-saving machinery. However, it is principally attributable to the fact that whereas agriculture in other countries has prospered and progressed, it has utterly decayed in Great Britain. While the production of the staple crops has diminished at an absolutely terrifying rate in the United Kingdom, the production of bread corn and the principal vegetables and of meat has considerably more than doubled in Germany between 1880 and 1913 While the bulk of the agricultural land in Great Britain has been abandoned by the plough and has been turned into grazing land, where rough grass produces only an insignificant quantity of meat, by far the larger quantity of the agricultural soil of industrial Germany is devoted to the most intensive cultivation. Some years ago the two countries compared as follows:

PERCENTAGES OF AGRICULTURAL SOIL.

	In Germany.	*In Great Britain.*
	Per Cent.	*Per Cent.*
Under corn crops	61·1	18·2
Under vegetables	18·2	9·4
Under fodder	10·1	5·9
Under grass and fallow . ..	8·7	66·5
Orchards and gardens .. .	1·9	--
	100·0	100·0

The frequently heard assertion that in a densely populated industrial country there is no room for a flourishing agriculture is obviously incorrect. Germany is almost as densely populated as the United Kingdom, while the population of Belgium per square mile is far in excess of that of the British Isles. Yet both countries have exceedingly productive rural industries. Before the War Germany was practically self-supporting in food, for her imports of bread corn were counterbalanced by her huge exports of sugar, and she was self-supporting in timber as well. Moreover, while vegetables, fruit, and milk, were scarce and dear in the United Kingdom, they were plentiful and cheap in Germany. Germany's superiority in the production of meat and milk may be seen from the following figures.

DAIRYING AND PIG-RAISING.

	In Great Britain in 1908.	*In Germany in* 1907.
Number of inhabitants . .	40,000,000	62,000.000
" of milch cows kept	2,763,780	10,966,998
" of pigs	2,823,482	22,146,532
" of milch cows per 1,000 inhabitants	69	177
" of pigs per 1,000 inhabitants . . .	70	357

Per thousand inhabitants Germany had, before the War, almost three times as many milch cows as Great Britain and five times as many pigs. Milk is the most important food for the growing generation, and pork is the most cheaply produced and the most nourishing and sustaining meat for the adults. Owing to the abundance of natural, home-grown food, and especially of milk, the German population is probably more sturdy than the English.

Rickets and many other ailments of childhood due to under-feeding, and particularly to the scarcity of milk, are little known in Germany.

While during the last few decades the British country population has diminished in the most serious manner, the German country population has remained practically stationary. The effect of the introduction of labour-saving machinery in the German countryside has been completely offset by a vastly increased agricultural production. In 1911 there were in the United Kingdom 918,120 agricultural labourers of both sexes, while in Germany there were in 1907 no less than 7,283,471. We can therefore not wonder that Germany produced before the War nearly ten times as much bread corn and ten times as much potatoes as did Great Britain and Ireland combined.

If we inquire why the British country population has deserted the land while the German population has remained on the soil notwithstanding the lure of great industrial towns where large wages can be earned, we find, of course, that the German farmers and agricultural labourers remained on the land because they were satisfied with their conditions, while the British farmers and agricultural labourers deserted the land because they were dissatisfied with their mode of life. These differences in the two countries were due to the fact that German agriculture was highly prosperous and progressive, while British agriculture was hazardous, suffering, and declining. In Germany the rural industries were cherished and promoted not only by fiscal protection, but by every means available, such as the provision of cheap transport, the application of science to agriculture, etc. In the United Kingdom the rural industries were abandoned and neglected by the State, and they suffered not only from the free competition of grain produced on the boundless plains of the two

Americas, but also from inequitable transportation charges. British agriculture was abandoned by the politicians, not only because the agriculturists were politically unorganised and could therefore bring no pressure to bear upon Parliament by means of its votes, but also, and particularly, because the democratic parties saw in the rural industries not so much a vast army of farmers and agricultural labourers who had a right to appeal to general sympathy, but they saw in the rural interest merely a small number of large landowners for whose benefit farmers and agricultural labourers toiled

From the point of view of ownership agricultural Germany and agricultural Britain differed as much as they differed in agricultural productivity The two countries compared as follows during the last year for which comparative figures can be furnished

ACREAGE OF AGRICULTURAL LAND

	Occupied by Owners	*Per Cent*	*Occupied by Tenants.*	*Per Cent.*
In Prussia in 1907 .	24,422 405 hects =	86·6	3,780,372 hects =	13·4
In Great Britain, in 1907 .	3,927,303 acres =	12·2	28,281,083 acres =	87·8

In Prussia seven-eighths of the agricultural land is freehold land, and is worked by its owners In Great Britain only one-eighth of the land is freehold land and worked by its owners Most British agriculturists till land which they do not possess, while most German agriculturists till their own land That is a very significant and very important difference, and the decay of British agriculture is largely, and very likely chiefly, due not only to the free importation of cheap trans-maritime grain and the disastrous effects of a transport system which benefited the foreign producer and penalised the domestic farmer. but also to the fact that the British farmer, and especially the British agricultural labourer, had no substantial territorial stake in the country.

The instinct of property is deeply ingrained in human nature. Men cherish what is their own and treat neglectfully what is somebody else's Security and property are most potent stimuli of human effort A tenant farmer rarely feels that love for the land which is felt by an occupying owner, and a landless agricultural labourer leaves the countryside as readily for town as a bricklayer's labourer leaves one employer for another employer If a nation wishes to obtain the utmost out of its land, it must attach the country population to the soil by the strongest ties, by the ties of love and of interest Mr Balfour very wisely wrote in his preface to Sir Gilbert Parker's pamphlet *The Land for the People*:

> Multiply as you will your enactments for securing the fruits of an improvement to the man who makes it, you will never efface the distinction between ownership and occupation It is based on sentiment, not on finance; and no demonstration of profit and loss will extract from the tenant of a County Council or Public Department labour which he would cheerfully expend upon a holding which belonged to himself and which he could leave to his children.

Countless statements contained in the numerous agricultural investigations made by the Government confirm Mr. Balfour's view that ownership is superior to tenancy. For instance, before the Committee on Fruit Culture, Mr. Lockhurst, Horticultural Instructor to the Derbyshire County Council, a thoroughly practical man, stated:

> At Long Eaton, where there are a lot of lace-workers, there are now about 300 or 400 freehold allotments of about

600 yards each. These are the men who plant fruit-trees, and really they do remarkably well I go occasionally to see how they are getting on, they arrange well, they plant right, and they prune right They have a thorough grip of the whole thing

Q. As a rule, who plants the trees of these plots, the landlord or the tenant ?

A. They are freehold

Q. Where the plots are not freehold ?

A. I find the tenants on allotments, unless they have security of tenure will not plant That is where the freehold comes in

Q Who puts up the buildings on the freehold plots ?

A The men themselves

Q What happens in the case of allotments that are not freehold ?

A Very little is done in that way

Q They have no buildings at all ?

A Very few indeed.

Many similar opinions will be found in the countless inquiries into agricultural conditions which the Government has made

British agriculture is, as far as its organisation is concerned, a survival of feudal times The feudal system has had its uses in the past, but it has had its day The era of democracy has arrived The feudal system is incompatible with modern conditions An agriculture which is based on the ownership of the few and the labour of the many is a danger not only to the nation, but also, and particularly, to the few who own the land The feudal land system was general in Europe up to the French Revolution of 1789 The outbreak of that year was chiefly due to the fact that the French farmers were landless, that they worked chiefly for the benefit of the aristocracy and of the Church, who were the principal landowners The distribution of land possessed by the few among the many converted the French peasants, whose wretchedness and backwardness Arthur Young, the great British expert, had so touchingly described, into prosperous, progressive, and contented men The French peasants who had been inclined towards violence and revolution became the most conservative element in the State Henceforward French revolutionaries were to be found nearly only among the propertyless masses of the big towns, and especially of Paris.

The fact that the abolition of the feudal system and the creation of universal freeholds had vastly enriched France and had converted the discontented French into conservative and patriotic citizens was not lost upon the other nations of the Continent The landless people of Prussia had seen with indifference their country overrun by the French To increase the prosperity of the Prussian people and to attach them to their country by the strongest bonds of interest, the great Prussian statesman. Stein, advocated the conversion of the landless serfs into peasant proprietors. Soon after the disaster of Jena and Auerstädt, Prussia, notwithstanding the poverty which followed disastrous defeat, set to work and divided the great feudal estates among the cultivators of the soil In Prussia, as in France, this great reform was followed not only by the regeneration of the national agriculture, but by that of the people as well The non-Prussian States, Austria, and the other States of the Continent, followed suit, and the wonderful progress of Continental agriculture during the period following the Napoleonic Wars was due in a very large measure to the institution of peasant proprietorship Very likely the Russian revolution would not have occurred, or at the worst would have been confined to the big towns, had Russia possessed the system of peasant proprietary.

Occupying ownership has proved its superiority over tenancy not only on the Continent of Europe, but in the British Dominions and in the United States as well. In the United States the percentage of land cultivated by occupying owners is constantly increasing, and that cultivated under the tenant system is equally constantly declining Universal experience obviously proves the superiority of the freehold system over the feudal system, which is a danger both economically and politically. British agriculture would never have been abandoned by the politicians had the interests of the rural industries been defended in Parliament, not by the representatives of a handful of territorial magnates, but by millions of sturdy freeholders whose existence was at stake The losses experienced by British agriculture fell, after all, chiefly on the few owners, for the farmers could in many cases obtain relief by a reduction in the rent, while the landless agricultural labourers could escape by migrating to the towns or to the countries overseas

The conversion of the British land system from a feudal to a modern and democratic organisation is imperative. The assertions of those who maintain that the existing system is best for Great Britain may be disregarded in view of the fact that they are contradicted by universal experience and by the lamentable decline of British agriculture

It is erroneous to believe that the landlords are indispensable in England's rural economy After all, they are principally the bankers of the farmers, the only difference being that whereas the regular banker merely charges interest for his assistance the landlord charges interest and, at the same time, claims a proportion of the farmer's earnings by insisting upon being a sleeping partner in his farm The creation of freehold farms will lead to the development of rural banking and to the development of co-operation among farmers similar to those developments which took place on the Continent of Europe after the downfall of feudalism.

The prosperity of British agriculture depends mainly on the army of agricultural labourers. Their contentment is vital. They cannot be attached to the soil merely by a high wage. They will love the country and remain in it if they have a permanent territorial stake in it. Every facility should be given to the agricultural labourers to acquire land, so that they may hope by industry and economy to become farmers themselves. Hitherto only too many superannuated agricultural labourers saw themselves compelled, at the end of a life of toil, either to be supported by charitable people or to end their days in the workhouse Every German agricultural labourer, every French agricultural labourer, every American agricultural labourer may hope to acquire a small farm and to rise gradually to opulent independence Many wealthy farmers on the Continent of Europe and in the United States started in life as agricultural labourers. Everything should be done to enable competent agricultural labourers to make themselves independent They cannot be expected to remain in the country if their life is merely a life of drudgery without hope.

Hitherto the purchase of land on the part of men of small means has been made difficult by the cumbersome and costly process of transfer. The title to land should be based, not on boxes full of documents, but on a simple entry in an official register and on an official map. The registration of title, which has become almost universal outside Great Britain, makes land an easily marketable commodity, and makes it an exceedingly attractive investment to men of small means.

The most pressing immediate necessity for attracting labour to the land and retaining the present labourers on the soil is the provision of an adequate number of cottages. The housing problem is at least as urgent in the country as in the town. Men cannot be expected to remain in the country if they cannot find adequate house-room for themselves and for their families The scarcity of rural cottages has very largely been caused by the multiplication of so-called tied cottages which are let at an uneconomic rent, such as a shilling or two per week The competition of these cottages has deterred private builders from building The provision of cottages let at half-price or less to agricultural labourers is due either to misapplied philanthropy or to the desire to retain the service of labourers by unfair means Probably it would be best to abolish this evil by Act of Parliament If the agricultural labourers were given by law the right to acquire the cottages in which they live at a price standing in a certain relation to the rent, the owners of labourers' cottages would, of course, immediately charge an economic rent, and would be forced to add to the weekly wage of the labourer the difference between the economic rent and the uneconomic rent charged hitherto

British agriculture suffers from the fact that it is labour-starved The countryside can be made to flourish only by the provision of vast numbers of additional labourers. British agricultural production can be trebled, but it can be trebled only by trebling the number of agricultural labourers, and the trebling of these is possible only by providing in the first place, adequate and decent house-room, and by giving men an inducement to work in the country The hope of being able to acquire their own houses and a small field on easy terms would probably cause thousands of town workers who are tired of town life, and who have learnt to use the spade and fork on an allotment, to go to the country After having served an apprenticeship of several years as agricultural labourers and put by a little money they might increase their little property, and might gradually become themselves substantial farmers The re-creation of British agriculture and of the British race urgently demands the abolition of the feudal system in the country, and the introduction of that democratic system of general freeholds which has proved its superiority from the agricultural point of view and its value from the political point of view in all countries where it has been introduced.

CHAPTER XXII

THE BRITISH LAND AND HOUSING PROBLEM IN THE TOWNS

GREAT BRITAIN is a democracy. In a country which is ruled by the many it is of the utmost importance that the people are satisfied with their lot. During the War, and especially after its conclusion, a great deal of unrest has been noticeable among the working masses. That unrest is no doubt partly due to that selfishness which is general among men and to the activities of mischievous agitators; but to a large extent it springs from justified resentment. The working masses have begun to ask themselves whether the conditions under which they live are worthy of men or unworthy, remediable or irremediable.

The mobilisation of the nation's manhood has revealed the fact that preventable disease is widespread among the masses, that the national physique has seriously deteriorated owing to insufficient food and house-room. It is worth noting that both industrial unrest and racial deterioration are greatest in those towns where industry is most active. Sir Donald Maclean stated quite correctly in Parliament on April 7.

> Among all the social questions with which members had to deal at the last election, the housing question easily took the first place. The revelation of the housing conditions under which tens of thousands of miners live was one of the most potent forces in influencing the mind of the country, as well as of the Coal Commission, in favour of dealing not only with that question but with the problem as a whole.

It is surely not merely by coincidence that in those districts of the country where overcrowding is most serious industrial unrest is greatest and the physique of the people is worst. Analytical examination of the Census and of various other Government reports reveals the fact that housing conditions are far worse in the North of England than in the South and the Centre of the country, and that they are worst of all in Scotland, and especially on the Clyde, which during and after the War has been the greatest hotbed of revolutionary anarchism It is usually considered that those houses are overcrowded which contain more than two occupants to each room Now according to the Census of England and Wales of 1911, overcrowding existed on the following scale in some representative towns:

In Gateshead	337	per 1,000 of population.
In South Shields	329	,, ,,
In Sunderland	326	,, ,,
In Newcastle-on-Tyne	317	,, ,,
In Tynemouth	308	,, ,,
In Derby	18	,, ,,
In Burton-upon-Trent	15	,, ,,
In Ipswich	13	,, ,,
In Northampton	11	,, ,,
In Leicester	11	,, ,,

The first five towns those on the Tyne, are towns in which overcrowding was greatest in 1911 The last five towns are those in which overcrowding was smallest at the time when the Census was taken

Across the Scotch border housing conditions are even worse than in England. According to the official paper, Housing Conditions (Scotland) (Cd. 4016), 1908, 2,042,945 people, or 45·68 per cent. of the inhabitants of Scotland, were found to live in overcrowded dwellings. The following table gives some of the worst instances of overcrowding

PERCENTAGE OF POPULATION OF SCOTLAND LIVING IN OVERCROWDED DWELLINGS.

	Per Cent.		Per Cent.
Clydebank	72·97	Kilmarnock	55·94
Motherwell	71·43	Glasgow	54·70
Coatbridge	70·58	Falkirk	54·61
Port Glasgow	66·42	Greenock	54·17
Govan	63·77	Forfar	49·86
Paisley	58·76	Dundee	49·44
Dumbarton	57·65	Leith	43·80

According to the Report mentioned, of the Scotch population 1,024,707, or 22·91 per cent., almost one-quarter of the total, lived herded four and more in one room, and the "homes" of 2,259,789 Scotch people, or 51·9 per cent. of the population, consisted of one-room and two-room dwellings. There is obviously some reason for Scotland inclining towards Radicalism.

It will be observed from the figures given that overcrowding was in 1911 most serious, as far as England is concerned, on the Tyne, while in Scotland overcrowding was even worse than in England, and it was particularly severe on the Clyde. During the War tens of thousands of workers went to swell the population of these overcrowded districts. We can therefore not wonder that shipbuilding and ship repairing suffered particularly from labour trouble, and that agitators bent upon mischief found the Tyne and Clyde districts a particularly congenial and receptive soil.

The fact that serious overcrowding is likely to breed dissatisfaction is shown by the extraordinary statistics given. The fact that overcrowding leads to physical deterioration can also be proved by statistics which are based upon searching and conscientious enquiry. For instance, during 1905-06 the School Board of Glasgow had 72,857 school-children measured and weighed in order to solve the question whether, and in how far, housing affects the physique of the people. In its Report (Cd. 2637) the result of that investigation was summed up in the following figures:

AVERAGE WEIGHT AND HEIGHT OF ALL CHILDREN (AGE 5 TO 18) EXAMINED.

	Average Weight.	*Average Height.*
	Pounds.	*Inches.*
Boys from one-roomed homes	52·6	46·6
,, ,, two-roomed ,,	56·1	48·1
,, ,, three-roomed ,,	60·0	50·0
,, ,, four-roomed ,,	64·3	51·3
Girls ,, one-roomed ,,	51·5	46·3
,, ,, two-roomed ,,	54·8	47·8
,, ,, three-roomed ,,	59·4	49·6
,, ,, four-roomed ,,	65·5	51·6

The figures given reveal the fact that housing has the most extraordinary effect upon physique. Commenting upon the figures given, the Report stated:

> These figures show that the one-roomed child, whether boy or girl, is always, on the average, distinctly smaller and lighter than the two-roomed; and the two-roomed than the three-roomed; and the three-roomed than the four-roomed. The numbers examined are so large and the results are so uniform that only one conclusion is possible—viz., that the poorest child suffers most in nutrition and growth. It cannot be an accident that boys from one-roomed homes should be 11·7 pounds lighter on an average than boys from four-roomed homes, and 4·7 inches smaller. Neither is it an accident that girls from one-roomed homes are on an average 14 pounds lighter and 5·3 inches shorter than the girls from four-roomed homes.

Of course, it must be borne in mind that inadequate housing accommodation is usually accompanied by inadequate food and sometimes by inadequate clothing.

Still, it is obvious that people who live in densely overcrowded, dingy, airless, and more or less insanitary dwellings are likely to suffer in health even if they should be adequately fed and clothed The existing statistics show, moreover, that a high death-rate accompanies overcrowding The death rate rises together with the overcrowding statistics

Insufficiency of housing and consequent overcrowding, and the existence of numerous ill built and insanitary houses, is a crying and terrible evil which must be stamped out with the utmost energy and rapidity Adequate houses for the toiling masses must be provided, and the cost is quite a secondary consideration The national expenditure on dwellings fit for habitation will be more than paid for in the improvement of the national health and in the contentment of the workers A healthy and contented worker is an asset, a sickly and discontented one a liability, and possibly a danger.

According to the Bill laid by Dr Addison before Parliament in April, 1919, hundreds of thousands of houses will be built with the co-operation of the State and of the Local Authorities The housing campaign which has thereby been opened is highly welcome However, the provision of hundreds of thousands of well built houses, of which a large number should be built in well planned, well-laid-out, pleasant and wholesome model settlements, will not suffice to solve the urban housing problem in its entirety

The great characteristics of the British working masses are their thriftlessness and their restlessness, two qualities which are exceedingly dangerous in a democracy The people on the Continent and the American people are far more thrifty and provident than are the English people. The English emigrants themselves become provident and thrifty when they leave their own country for the United

States or for the Dominions. Providence is, of course, encouraged if people are offered a very attractive investment. Savings are discouraged if there are no attractive investments within the reach of the toiling masses It is a natural instinct in men that they desire to possess, entirely and absolutely, things of permanent value It is a natural instinct in men that they desire to possess absolutely not only the furniture which they use, but also the houses in which they live and a piece of ground Thrift has been enormously encouraged on the Continent of Europe, in the United States, and in the British Dominions, by facilities offered to the workers of acquiring freehold land and houses of their own The vast majority of the houses in Germany, France, Holland, Belgium, Austria Italy, the United States and Canada, are owned by the people inhabiting them The possibility of acquiring houses, cottages, and business premises, not on lease, but as a perpetual possession, is an exceedingly strong inducement to thrift The man of small means is not satisfied with the insignificant return made by the savings banks, and as he does not care to invest his money in Stock Exchange securities which he does not understand, he is apt to spend all he earns; but he would gladly save could he invest his savings in land and buildings which would be his for ever The preference of working-men for freehold houses, if such are obtainable, is well known, and was well brought out by the examination of several witnesses examined by the Select Commtitee on Town Holdings For instance, Mr John Green, a working-man who had been employed during twenty-eight years at the Royal Arsenal in Woolwich, was examined as follows:

Q. You think that the workmen have a desire to obtain the freehold of their own houses for the benefit of the families in preference to leaseholds ?

> *A*. Equally so as much as an aristocrat, because the idea of the workman is to benefit his family; but he resents this continual drain upon the savings of his class by the ground landlord
>
> *Q*. Then you think the workman is as proud of his little estate as the larger man of a large estate ?
>
> *A* Equally so; and he would wish to hand that little estate down to his family, even if only a two-roomed cottage with a small bit of garden . . In my opinion it would be a very great inducement to thrift and economy on the part of the working-man, because I know there are scores of working-men in the Arsenal who have money, and who rightly refuse to invest it in leasehold property; but if they could buy freehold it would have a great tendency to keep the workman away from the public-house. It would take him into his garden, his greenhouse, or his workshop

Before the same Committee, Mr. Benjamin Jones, representing the Union of Working Men Co-operators, stated:

> We co-operators think that every man in the nation has a right to have some stake in the country, and we are trying as fast as we can to make every working-man into a small capitalist He cannot be a capitalist unless he has some means of investing his money An enlightened, intelligent, and well-educated man may not be frightened of investing his money in all parts of the earth, but a working-man naturally wants to see his money near at hand, and we say that for the public good it is absolutely necessary that the working-man should have some opportunity to invest his money near at home, and so induce him to be provident We object to being compelled to hand over at the end of the term all the property that we have put on the land It is impossible for me to express in strong enough terms the working-men's detestation of the present system

In most British towns land and houses are owned by the few. The natural desire of the workers to acquire their own houses with their savings and to leave them to their descendants is thwarted. The fact that the vast majority of the people occupy houses which are not their own converts the nation into a nation of lodgers. Thus the leasehold system creates not only thriftlessness and improvidence, but also that spirit of restlessness which is dangerous in a democracy The British nation is a nation of dissatisfied lodgers.

The leasehold system possesses numerous serious disadvantages It causes wastefulness, for people treat badly houses which are not their own Consequently the repairs of leasehold houses and cottages are exceedingly heavy. Besides, it creates much unnecessary friction within the community, and creates not only hatred against the landlords, but against property-owners of every kind.

The leasehold system causes shoddy building, for houses are erected to let, but not to last, and it creates the slum, for houses the lease of which is running out are apt to be utterly neglected by their owners and by the various people who, through letting and subletting, may have an interest in the property.

Many official Commissions and Committees have recommended the creation of numerous freeholds for the benefit of the working masses, but hitherto their recommendations have been disregarded For instance, the Report of the Royal Commission on the Housing of the Working Classes stated:

> Your Majesty's Commissioners recommend generally, with reference to all kinds of dwellings, that facilities should be given to allow capital to be repaid in rent with a view to giving to tenants facilities for becoming freeholders.

That recommendation was made in 1885, but, like so many excellent recommendations, was not acted upon by short-sighted party politicians.

At present the acquisition of a freehold house is almost impossible to men of small means, and especially to working-men, because owners frequently do not care to sell, and particularly because the purchase of a house is a cumbersome and outrageously expensive transaction. The title to a piece of land does not consist in an entry in an official register, which is guaranteed by the State or by the Local Authority, but in a number of documents which may or may not be valid. In an apparently sound title there may be a flaw, and the examination of the title-deeds requires a considerable amount of time and a very large expenditure of money, and even then there is a certain amount of risk. So the working-man is afraid of acquiring a piece of land or a freehold house, especially as he has no secure place in which he can keep his deeds. On the Continent the title to real property rests in an entry in an official land register. Land and houses can be bought and sold as easily, as quickly, and almost as cheaply, as furniture or as stocks and shares, and any mistake made by the registering authority falls, not on the purchaser, but has to be made good by the registering authority itself. The result is that on the Continent land and houses are considered the most desirable investment for farmers, peasants, small tradesmen in towns, and even by the great body of wage-earners in factories.

On the Continent in those towns where large houses let in flats are general, it is comparatively difficult for men of small means to have a freehold house of their own. In the smaller towns freehold houses are general. The United Kingdom is ideally situated for instituting the freehold system in the towns, because the vast majority of people, even in London, live, not in huge barrack-like houses, as people do in Paris, Berlin, Vienna, etc., but in small houses and cottages of four, five, or six rooms. The fact that there is a strong desire among the people to acquire houses of their own is eloquently attested by the numerous building societies, with the help of which men of small means have acquired a very large number of leasehold houses.

The congestion of the British industrial towns and the existence of a great deal of preventable overcrowding is due to a scarcity of houses. This scarcity has been caused largely through the mistaken legislation of 1909. Out of every twenty houses occupied by the working classes, built before the War nineteen were according to Dr. Addison, built by private enterprise. By penalising the speculative builder and by frightening the owner of house property, the Government brought the building of houses almost to a standstill. Meanwhile existing houses decayed and the population kept increasing. Thus legislation which was aimed at improving the housing of the people actually resulted in creating overcrowding.

Overcrowding is due not only to the fact that there is an insufficient number of houses, but that working people insist upon living close to their place of work instead of settling farther out, where they could dwell in better air and happier surroundings. The congestion of the industrial towns is partly due to insufficient means of communication between the industrial centres and the surrounding country, partly to the high fares charged. Dr. Addison stated in his speech of April 7, 1919:

> It is a significant fact that in 1907, of the 500,000 people employed in factories in London, 346,000 dwelt in the inner zone, only 168,000 in the middle zone, and 35,000 in the outer zone. That was to say, practically three-quarters of the people employed in factories in London dwelt near their work. It is clear that until there was vastly increased means of transport, until there was much better factory development outside the City, this problem would be urgent and acute in the great centres of population. We want to improve our transport system so that people can more readily get farther out.

The United Kingdom suffers from an insufficiency of tramways and other means connecting the towns with the suburbs, and from unduly high fares The development of suburban traffic has unfortunately been seriously hampered by Parliament giving to the Local Authorities a traffic monopoly Municipal enterprise has been a failure The Local Authorities have created a totally insufficient service, which works at unduly high cost. In the United States private enterprise has created tramways the mileage of which vastly exceeds the total railway mileage of the United Kingdom The British tramway system may be more substantially built, but the unfortunate workers cannot get out of the towns because the facilities are insufficient and the fares too high The demands of the railwaymen and the omnibus and tramway employees for higher wages have led to a further increase in fares, which is bound to deter the workers from settling farther out High fares are as much responsible for the existence of the slums as the absence of a sufficient number of houses

The creation of the freehold system in the towns is desirable and urgent for many reasons The existence of millions of freeholders should lead to better housing, for men take good care of houses which are their own Moreover, the freehold system would improve not only the physical health of the country, but its political and social health as well It is dangerous for a nation where the many rule that the bulk of the land in town and country should be in the hands of the few The result has been that the landowners and the houseowners have been treated by the politicians as if they were the natural enemies of the people Thus the masses have been taught to look for an improvement of the housing conditions rather to the Government than to rely upon their own exertions, and to expect an improvement in housing rather from expropriation than from thrift. These ideas are very dangerous, and they may prove fatal to England's peace and future.

The freehold system, the system whereby a large landowner only lends, but does not sell, his ground, and insists upon acting as a sleeping partner in the business which is carried on upon it, is disadvantageous not only to the worker, but also to the business man. He is hedged about by numerous conditions His freedom of action is curtailed in many directions, and at the expiration of the lease be may be faced by the alternative of either submitting to extortion or of moving his business elsewhere. Besides, the cumbrous system of land transfer causes endless delays. It often takes an English business man longer to find out the soundness of his title than it takes a German, French, or American business man to acquire his land and to build his factory

CHAPTER XXIII

THE INEFFICIENCY OF BRITISH INDUSTRIAL PRODUCTION—II.

THE FACTS OF THE CASE.

INDUSTRIAL efficiency begets prosperity, and prosperity leads to general contentment. Industrial inefficiency brings about poverty, unemployment, and general dissatisfaction and unrest. England's industrial and social difficulties are largely due to the backwardness of her industries.

Prosperity depends mainly on production. Those nations are the wealthiest where production per man is greatest. With the help of the most perfect organisation, and of the best labour-saving machinery an intelligent artisan can produce as much as a number of artisans produced by the more primitive methods of the past. The result is that the highly productive workers of the present possess comforts and conveniences without number which were out of reach of their forefathers, and which, in the time preceding the industrial revolution, were highly prized luxuries to men of the middle class.

The most progressive and the most prosperous nation is the American nation. The United States have advanced with giant strides. In 1821 the United Kingdom had 21,272,187 inhabitants, and the United States had only 9,638,453 inhabitants. There were then two Englishmen to every single American. Now the United Kingdom has about 47,000,000 inhabitants, and the United States have more than 100,000,000 inhabitants. There are now two Americans for every single Englishman. Only a few decades ago the United Kingdom was considerably richer than the United States. Now the United States are considerably wealthier than all the States of the British Empire combined. England has ceased to be the leading Anglo-Saxon nation both in population and in wealth. That is a very serious matter, for numbers and wealth are the main pillars of nations, they are the foundations of national strength and independence.

It is frequently asserted that the vast wealth of the United States is due to their magnificent natural resources. That is scarcely correct. The area of the British Empire is more than four times as large as that of the United States. The natural resources of the British Empire are probably far greater than those of the United States. The United States are wealthier than the British Empire, not because the natural resources of America are greater, but because the production of the American workers is far greater than that of the British workers. Production is wealth. With the help of an excellent organisation and of the most perfect and the most powerful labour-saving machinery the average worker in the United States produces approximately three times as much as does his British colleague who is employed in the identical calling.

The statement that the average American worker in the factory and the workshop, in the mine and on the farm, on the railway and in the counting-house, does about three times as much work as his British colleague, seems at first sight to be a reckless overstatement. Yet that statement is correct, and its correctness can be proved by means of reliable official figures.

The United States have combined with their periodical Census of Population a Census of Production which records the productivity of the various industries in full detail. The United Kingdom, which in the past has taken only Censuses of Population, has at last followed America's example; it has taken in 1908, for the first time, a Census of Production which relates to the year 1907. The American Census of Production nearest in date to the first British Census of Production is that for the year 1909. The interval of two years between the two Censuses is only small. Consequently, we can fairly compare British and American production by means of the two industrial Censuses mentioned.

There is a difficulty in comparing the results of the two official investigations. Many industries have been classified in different ways in the two countries. If we leave out of account those industries which are not comparable because they have been grouped and classified in such a manner as to be not readily comparable, there remains a residue of twenty-six industries in which the grouping has been practically identical. These twenty-six industries allow us to compare British and American production per worker employed, and a careful comparison of the figures given shows that in these the American worker produced in 1909 approximately three times as much as did his British competitor in 1907. That fact is clearly brought out by the table on p. 519.

It will be noticed that production per worker, both per week and per year, is almost three times as great in the United States as in Great Britain. However, while the most efficient British industry, the huge cotton industry, is included in the table, the most efficient American industries, the gigantic iron and steel industry and the vast engineering industry, are excluded, because the different classification and subdivisions adopted in the two countries make comparison between these industries impossible. Thus the comparison is perhaps unduly favourable to England. Had it been possible to include

	Gross Output per Worker per Year.		*Net Output per Worker per Week.*					
	United States in 1909.	*United Kingdom in 1907.*	*United States in 1909.*			*United Kingdom in 1907.*		
	£	£	£	s.	d.	£	s.	d.
Boots and shoes . .	516	171	3	10	0	1	7	4
Cardboard boxes . .	275	106	2	15	0	1	0	0
Butter and cheese . .	2,979	1,310	8	3	0	2	8	1
Cement	472	192	4	17	8	2	10	10
Clothing	484	158	4	7	4	1	3	11
Cocoa, chocolate, and confectionery .	662	296	4	18	5	1	12	3
Cotton goods . .	332	236	2	13	9	1	10	6
Clocks and watches . .	296	137	4	3	0	1	7	9
Cutlery and tools . .	323	164	4	1	6	1	8	1
Dyeing and finishing textiles	379	184	4	4	3	1	18	11
Gasworks . .	897	422	11	16	7	4	1	1
Firearms and ammunition .	464	152	4	9	2	2	2	8
Gloves .	416	233	3	10	9	1	11	2
Hats and caps .	414	149	4	1	10	1	5	10
Hosiery . . .	309	184	2	2	6	1	3	5
Leather tanning and dressing	1,054	686	4	13	1	2	5	0
Lime	258	141	3	2	4	1	13	5
Brewing and malting	6,209	937	19	10	5	6	7	3
Matches . . .	1,729	408	7	3	1	1	13	0
Paint, colours, and varnish	4,012	1,375	12	9	3	3	16	2
Paper	15,846	4,201	5	3	5	2	2	8
Pens and pencils . .	710	241	4	5	9	1	9	8
Printing and publishing	1,154	4,133	7	16	11	3	13	1
Railway vehicles . .	2,274	1,127	4	0	5	2	7	5
Silk goods	989	608	3	9	3	1	1	2
Soap and candles . .	2,160	1,092	11	7	8	2	19	8
Average per worker for all the industries enumerated . .	1,747	617	5	17	7	2	3	1

in the table the iron and steel industry and the engineering industry, it would probably be found that the average production per worker was fully three times as great in the United States as in the United Kingdom.

America's superiority in production per worker is practically universal, but it varies greatly in the different industries enumerated. It is smallest in the cotton industry, in which the American worker produces about 50 per cent more than the British worker. On the other hand American production per worker is considerably more than three times as great as British production per worker in the making of clothing, silk goods, matches, etc., in which the Americans use a great deal of automatic machinery which is little employed in the United Kingdom.

Some readers may say, "These comparisons are not fair. Measured in money, American workers produce three times as much as English workers because American goods are more expensive than British goods." That argument must, of course, be answered.

The values given in both the British and the American Censuses are wholesale values at factory. Now although before the war the retail prices of many goods were higher in the United States than in the United Kingdom, wholesale prices were almost identical in the two countries. If wholesale prices in the United States were considerably higher than in the United Kingdom, the United States could, of course, not compete with British goods in foreign markets. However, American goods are sold freely in competition with British goods, not only in foreign countries, but also in Great Britain. Everyone knows that American steel, machines, implements, tools, hardware, motor-cars, sewing-machines, typewriters, desks, pencils, watches, chemicals, photographic apparatus, etc., are freely sold in the United Kingdom. That could not possibly be done if American wholesale prices were considerably higher than British wholesale prices, especially as there is only little American dumping. On the other hand, American retail prices were before the War higher than British retail prices. This happened because longer distances and higher wages of shop assistants make retailing in the United States more expensive than in the United Kingdom.

Let us now study the table a little more closely. The comparisons given in the four columns are of two kinds: they are in respect of "Gross Output" and of "Net Output." Now, the question will be asked: "What constitutes gross output and what net output?"

The two columns which compare gross output in the United States and Great Britain give the actual wholesale value of the products turned out by the British and American worker per year. For instance, the average worker in the clothing industry produced £484 worth of clothing in the United States and only £158 worth of clothing in the United Kingdom. Now, it stands to reason that the American output per worker would be far greater than the British output per worker if the American clothing industry employed more expensive cloth than the British clothing industry, or if the American boot and shoe industry used more expensive leather, etc. That difference in the cost of materials which may falsify the comparison between British and American output per man can easily be eliminated.

If we wish to find out how much a worker actually produces by the work of his hands, we must, of course, deduct from the value of his output in clothes, boots, etc., the value of the materials used by him and all the incidental expenses of the factory such as rent, rates and taxes, fuel, wear and tear of machinery, cost of management, etc., for all these are contained in the wholesale cost of the goods produced. All these items are given both in the British and American Census of Production, having been furnished by the manufacturers. If we deduct from the gross output per worker the cost of all the materials used and all the other items which are usually called overhead expenses, we find out the actual value which the worker has produced by his personal work. This actual value produced by the worker by his exertion is what is called the net output. To sum up, gross output gives the value of the goods produced per worker, and net output states the actual value of the worker's own labour

Comparison of Columns 1 and 2 shows that the American worker produces at wholesale prices nearly three times as much gross as his British colleague. In other words, he produces nearly three times as many boots, suits of clothing, etc., per year. Comparison of Columns 3 and 4 shows that the American worker does also about three times as much work as his British colleague, because he produces nearly three times as much net as the British worker. If we leave out of account the cost of all the materials used and all the overhead expenses of the factory, American production is still about three times as great as British production per worker

It appears from the reliable British and American Government figures given that the American worker produces on an average, both gross and net, about three times as much as the British worker employed in the identical calling that a single American worker produces about as much as do three English workers Naturally people will ask: "How is this possible? How do the Americans achieve this? Do they work so much harder than English workmen, or do they work much longer hours?"

In 1907-1909 working hours were almost identical in the two countries. In some industries the Americans worked longer hours and in some they worked shorter

	Total Horse-Power employed.		*Horse-Power per 1,000 Wage-earners.*	
	United States in 1909.	*United Kingdom in* 1907.	*United States in* 1909.	*United Kingdom in* 1907.
Boots and shoes ..	96 301	20,171	486	172
Cardboard boxes ..	23 323	2 288	590	114
Butter and cheese	101,379	11,372	5,507	1,477
Cement	371,799	60 079	13 873	3,195
Clothing . .	65,019	17,837	165	45
Cocoa, chocolate, and confectionery	46,463	19,898	980	346
Cotton goods ..	1,296,517	1,239,212	3,433	2,214
Clocks and watches	14,957	550	628	125
Cutlery and tools .	62,294	5,248	2,069	420
Dyeing and finishing textiles ..	107,746	190,252	2,449	1,949
Gasworks	128,350	33,618	3,469	687
Firearms and ammunition .	17,840	2,619	1,214	595
Gloves	2,889	509	256	113
Hats and caps ..	23,524	5,142	588	181
Hosiery	103,709	7,784	80[illegible]	163
Leather tanning and dressing.. ..	148,140	22,609	2,389	847
Lime	27,671	10,867	1,991	701
Brewing and malting	347,726	64,636	6,209	937
Matches	6,224	1,591	1,729	408
Paint, colours, and varnish ..	56,162	14,575	4,012	1,375
Paper	1,304,265	172,224	15,846	4,201
Pens and pencils ..	4,261	1,450	710	241
Printing and publishing	297,763	38,611	1,154	1,133
Railway carriages and waggons ..	97,797	30,407	2,274	1,126
Silk	97,947	18,867	989	608
Soap and candles..	29,159	16,938	2,160	1,092

hours than Englishmen. On the whole, and taking all trades together, there was little difference between the two countries. America's extraordinary superiority in production is therefore not due to longer hours, nor is it due to harder work.

The greater production is, the lighter is the work. It is infinitely easier to excavate 100 tons of earth with a steam shovel than 10 tons by hand! It is infinitely easier to direct a heavy steam hammer than to wield a light hand hammer. America's vast superiority in manufacturing production per man is due to various factors, among which two are of particular importance. These are, firstly better machinery, and secondly greater engine power.

Everybody knows nowadays that the Americans use much more automatic and other labour-saving machinery and devices than Englishmen, but it is not generally known that the Americans use a great deal more engine power as well. The fact that America's vast superiority in production is due not only to the employment of more perfect machinery, but also, and particularly to the possession of far more power with which to run these superior machines, is clearly proved by the following figures. They also have been extracted from the British and American Census of Production, and they should be studied with attention. (See p. 523.)

If we now add up the figures given by the British and American Censuses for the twenty-six industries mentioned, we arrive at the following very interesting and significant result:

HORSE-POWER USED IN THE TWENTY-SIX TRADES PREVIOUSLY ENUMERATED

	No. Workers.	*Horse Power used.*	*Horse-Power per 1,000 Workers.*
United States	1,982,777	4,779,225	2,409
United Kingdom ..	1,699,572	2,009,354	1,182

The figures given show that per thousand workers the American industries use considerably more than twice as much horse-power than do the corresponding British industries. In other words, the American industries have a better mechanical outfit than the British industries. They use machines of a superior kind. In addition, they set these superior machines in motion with greater power. It stands to reason that a thousand workers can produce more with superior machines driven with great power than a thousand equally able workers who use inferior machines driven by less than half the power.

In the past Great Britain was the workshop of the world. In the past the factories of the United Kingdom produced far more goods than the factories of any other country. The wealth of modern nations is created chiefly in the factories and in the workshops, not in the mines and in the fields. Even in the United States the wealth and income created in the factories is far greater than the wealth and income created by their gigantic agriculture and their enormous mining industries. The production of the American factories was in 1909–10, according to reliable official figures, twice as large as the production of agriculture, mining, forestry, and fishery combined.

All the figures given in the preceding pages, as well as those contained in some of the previous chapters, tell the identical tale. All confirm the fact that the average American worker does about as much productive work as three Englishmen. That is a very serious fact, which, of course, has very serious consequences to the British nation, and to the British workers. Production means wealth, and wealth means production. High production enriches nations and the individuals of which they are composed, and brings about progress and advancement. That may be seen by the example of the United States and of the American people, whose progress and prosperity are phenomenal. On the other hand, low production means low consumption, means backwardness and stagnation, means dissatisfaction, indigence, or even poverty, for States and their citizens. That is proved by the example of Spain and China.

THE FAULTS OF THE WORKERS.

Readers who are interested in the problem of production will no doubt ask: "How is it that a single American worker produces as much wealth—for useful and necessary goods are the only true wealth—as do three Englishmen? How is it that so much British labour is wasted in unscientific and unsatisfactory production? Why are the United States so far ahead of Great Britain in the use of the best labour-saving machinery and in the use of an abundance of power with which to drive it? Is it the fault of the employers or of the employed, or are both employers and employed equally responsible for England's extraordinary inferiority in mechanical outfit and in output?"

The responsibility for the lowness of British production per worker is shared by the employers and the workers.

Let us proceed with absolute impartiality. Let us first deal with the attitude and the mistakes of the workers, and then with the attitude and the mistakes of the employers

The fact that the British workers have hitherto striven, not to increase, but to restrict output, is notorious. It is so notorious that it has been commented upon by many highly competent observers and particularly by the most authoritative industrial experts of the United States. The views expressed by them will be found in the chapter on "The Inefficiency of British Industrial Production—I." In the United States the limitation of output is little known. In that country employers and employed are agreed that high individual production is of the greatest benefit to the workers, to the employers, and to the nation as a whole.

The war has stirred up masters and men. Employers and employed have begun to recognise that national and individual prosperity depend, in the first instance, upon high individual production, that masters and men must bestir themselves and do their best. After all, the most precious possession of a nation is the productive labour of the people, and the greatest waste which a nation can indulge in consists in wasting labour, in making three men do work which one man can do; in producing one pair of boots for every three which might be served out; in building one house for every three that might be constructed.

While the War was still in progress the British Board of Trade and the Ministry of Reconstruction appointed a number of Committees, which were to report on the present position and the future development of the principal industries. These Committees were composed of leading experts in the various trades. Hence their findings are of considerable value. Some of the reports which have been issued contain complaints as to the deliberate limitation of output on the part of the workers. For instance, in the Report on the Engineering Trade (Cd. 9073), we read, on p. 13:

> Nearly every employer who appeared before us had the same story to tell. Whilst alleging that the British mechanic stands second to none of the mechanics of the world—that his skill, initiative, and adaptability enable him readily to cope with any engineering manufacturing difficulties—each employer in turn complained of two things. The first complaint was that the workman deliberately restricts his output below that which represents a reasonable day's work, and that this deliberate restriction does ultimately have a serious effect on his

> character and makes him physically incapable of producing a reasonable day's work, through habit which this restriction engenders. . . .
>
> The second complaint was that the restrictions imposed by trade-union rules class as skilled work (a definition which can be determined by the rate of pay) that which is in fact unskilled work. These two points seem to include the main difficulties with which employers have to contend, and which present a most grave aspect if they are to continue after the War, in face of the great national problems which will then demand solution. . . .
>
> We are satisfied that both these allegations are founded on fact. On the other hand, we recognise that from the view-point of labour there is something to be said. As regards the restriction of output there seems to have been in certain quarters a belief that there is only a certain amount of work to be done, and that it is necessary that this work should be spread over the largest number of workmen possible. We recognise that the basis of these beliefs is loyalty to the trade unions to which they belong and to their fellow-workmen. It has altogether an admirable side. On the other hand, it is, we think, a fallacy to believe that, within practicable limits, the demand for engineering outputs is a limited quantity.

The trade unions discourage payment by the piece, as it increases production. The Report states:

> In order to enable the expert workman to earn during the best years of his life the maximum possible return, it would seem that piece work, or a bonus system on time work, ought to be the foundation as far as possible of all employment.
>
> The trade unions have in the past been very reluctant to admit piece rates. Indeed, even now some of the unions forbid their members to accept piece rates where these have not previously been in force, and, where piece work has been started, the members are asked to discourage it as much as possible. It has also been evidenced to us that cases have occurred wherein, should the men earn more than time and a third, they have been fined by their union. . . .

Of course, payment by piece rate should be fair, and, as a rule, is fair. The Report states:

> We are glad to think that few employers of any standing have recourse to a system of cutting piece rates, a system which was prevalent in the old days to such an extent, and without justification, that piece work was brought into disrepute. Indeed, certain employers' associations have regulations against this practice. We are of opinion that a piece rate once fixed, and proved to be reasonable after fair trial, ought not to be disturbed, except by adjustment through agreed rise and fall of wages or in every special circumstance—such as the introduction of an improved machine or method of producing the same article.

The Reports of various other Committees contain similar statements with regard to the limitation of output. For instance, the Report of the Departmental Committee on "The Position of the Iron and Steel Trades after the War" (Cd. 9071) stated, under the heading "Iron Castings (Light Castings)," on p. 11.

> The trade suffers considerably from restriction of output by employees, and it is well known that, although foundry workers earn higher wages in the United States, the wages cost of certain standard articles produced in both countries is considerably lower in the United States (because of larger output per worker).

With regard to wire and wire nails, we read on p. 13:

> The manufacture of wire and wire nails is hampered in this country by the rules of the Workmen's Society of Wire-Drawers that no man should take charge of more than two wire-drawing blocks, whereas in Germany and America no limit is placed upon the number of blocks an individual workman may attend.

On p. 27 we read, under the heading "Labour":

> A Committee of managers, foremen, and workmen should be formed in each works to discuss and advise as to distribution of labour and restriction of output. The

policy of restriction is strongly discountenanced by some of the leaders, but there is no doubt that deliberate restriction is practised by individual workmen and groups of workmen in conformity with the policy of their unions, some of which oppose payment by results as being inapplicable to their particular trades.

If the British iron and steel industries as a whole are to regain their place in the trade of the world, restriction of output must be definitely abandoned. Whether it be used as a policy to be pursued or as an economic weapon, restriction of output is economically unsound and is utterly harmful, not only to the present prosperity, but also to the future progress of British industries.

The Report of the Coal Conservation Committee confirms the views expressed by the Committees on the Engineering Trades and on the Iron and Steel Trades. It states in its Report, on p. 61, under the heading "Output per Person employed Underground":

> One of the most important factors in the cost of production is the annual output per person employed underground. In this matter there is, in the British coalfields, ground for some misgiving as to the future in view of the fact that for a considerable number of years before the War this output has been steadily declining, notwithstanding the increase in the use of mechanical appliances in the mines.
>
> Various reasons may be advanced to explain the decrease, but none of them can be regarded as adequate. The matter calls for the most complete investigation on the part of the employers and the representatives of labour, as the future prosperity of the industry itself and of the industrial position of the country generally depends very largely upon a solution of the problem being found.
>
> Where there is any unnecessary restriction of output, this should be removed, and if such restriction is in any degree due to a feeling of insecurity on the part of the workmen, and a belief that if they put forth a special effort to increase production they will suffer a reduction in their wages rates, a strong effort should be made to remove any justification which may exist for such a belief.

The interests of the employer and his workmen appear to be identical in this important matter, and the fullest co-operation between them is required for the attainment of this end. It is only by increased production per head of the persons employed that our trade position can be maintained and that improved conditions of employment can be secured, and this ought to be recognised by workmen as well as by employers.

THE FAULTS OF THE EMPLOYERS.

While the workers have kept back production in the supposed interest of labour by their deliberate, determined, and persistent policy of restricting output, many employers have prevented the introduction of the most modern and most efficient methods of production, either in the hope of benefiting themselves or from sheer torpor and lethargy. Some employers were content to continue producing with their grandfather's machines and according to their grandfather's methods, saying to themselves: "What was good enough for my grandfather is good enough for me." Some manufacturers, feeling bored with business, left the direction of affairs to managers who merely carried on in the old way. Some were foolish enough to disdain new inventions and improvements, and refused to take note of them. Some thought it good business to retain their old labour-wasting machinery, as they did not realise that nothing is more wasteful than economy on labour-saving plant.

While one must not close one's eyes to the faults of the employers, it must, of course, not be forgotten that many manufacturers did not care to modernise their installation because they feared that the introduction of costly labour-saving improvements would result, not in an increase in output, but in trouble with their workers; that the improvement of their mechanical outfit and organisation would thus lead to a very considerable loss.

The American Report on Regulation and Restriction of Output, which has previously been quoted, stated with excellent reason:

> The (British) employer is afraid that any proposed change, of whatever nature, will result in friction and controversy with his workmen. He fears that, should he reorganise his shop with expensive and more modern machinery, his employees will either refuse to work the new machines, or, not being familiar with the power of the machinery, would demand a rate of pay which would more than absorb the profits from its use, or, suspecting that they were not getting a sufficient rate of pay on the machine, would restrict the output so as to make the venture unprofitable

> Many instances might be given of workmen producing with new and exceedingly expensive machinery exactly as much as they did with the old labour-wasting machinery which had been scrapped. Such experiences, of course, deterred manufacturers improving their mechanical outfit.

The various Reports which, towards the end of the War, were issued by the Board of Trade and the Ministry of Reconstruction dwell unsparingly on the sluggish conservatism and lack of initiative of many employers, the antiquated organisation of industries, and the general inefficiency of the mechanical outfit and the methods of production—faults which the employers ought to have remedied For instance, the Report on the Engineering Trades after the War states on p. 9, under the heading "German and British Works compared:

> There has been generally an absence of totally new works with an economic lay-out. Whilst the country can point to many works of the highest class, with the most modern equipment worked at the highest efficiency, there can be no doubt that many of our older works are manufacturing at costs which could be greatly reduced

if the works as a whole were on a larger scale, well planned and equipped with plant, and therefore capable of being worked in the most efficient and economical manner. In one instance brought to our notice it was only by taking a bold plunge and building works specially suited to the production of the article made, previously a German monopoly, that success was achieved. This remodelling of works under present conditions does not seem generally possible, whilst in many cases the energy and capital are lacking to adopt the American system of scrapping old works in favour of a total reconstruction on the most modern lines.

The further comment arises that with many firms of manufacturers, carrying on relatively small businesses, management and establishment charges are necessarily much higher than they need be if the firms were working in larger units.

On p. 10 of the same Report we read, under the heading "The British Manufacturer":

We have, as previously indicated, been much impressed in the course of our investigation by the very large number of relatively small firms that exist—each with a separate organisation, separate establishment charges, separate buying and selling arrangements, and each producing a multiplicity of articles. Some of them seemed to take a special pride in the number of things they turn out, whilst few of them seemed to be willing to contemplate buying at a cheaper price a component part from a rival manufacturer, even if they were permitted to do so by that rival.

A system of exclusiveness and aloofness marked the engineering trade before the War. Each manufacturer keeps his own secrets, and if he has any special processes or special method of manufacture, he, somewhat naturally, is desirous of retaining that process for himself rather than of adding it to the common manufacturing knowledge of the country. The result of many firms being employed upon producing a large number of articles in common use is the causing of confusion in the types of articles produced, so that no two manufacturers seem intentionally to produce precisely the same article. Each one claims some special merit for his own.

Continuing the Report states, under the heading "The German and American Manufacturer":

> The system in Germany and the United States is widely different. There manufacturers work in as large units as possible. The number of patterns produced in each works is strictly limited and the sale of the articles manufactured is pushed throughout the trade. One manufacturer may specialise on a certain article forming a part only of a completed product, and other manufacturers requiring that part will buy it from him and not make it themselves.

On p. 11 we read under the heading "Specialisation of Output":

> In this country we have, except in the cycle trade, practically no one to compare with the component specialist who exists throughout the United States. There is consequently a very large amount of unnecessary stock of different patterns carried throughout the country, and made at a higher cost than it is necessary. Workmen are constantly diverted from the manufacture of one article to the manufacture of another, much time is thereby wasted, and the change over from machines entails a considerable amount of machinery standing idle when the special article for which that tool is required is not at the moment being produced. This is a wasteful and costly process which limits output and therefore decreases possibility of profit and high wages, whilst the absence of much repetition work prevents a system of payment by piece being largely introduced.
>
> The witnesses admit that the present system of production in the engineering trades can easily be improved and undoubtedly since the War there has been a considerable movement towards standardising patterns, the specialisation of output, the co-ordination of production, and towards the communication to each other by hitherto rival manufacturers of improved processes and methods.

Producing on the largest scale in scientifically planned and perfectly laid out modern works with the best and most powerful machinery and by means of the highest specialisation and standardisation enables a manufacturer to produce excellent goods in gigantic quantities at an incredibly low price by means of extraordinarily highly remunerated labour. The Ford motor-car is a brilliant example of production carried on in this manner. Mr. Henry Ford has been a public benefactor not only by producing a cheap and popular motor-car—I think he alone turns out every year more motor-cars than all the nations of Europe combined—but also by teaching the world how to produce cheaply by means of the highest-paid labour. Naturally his methods, which are likely to revolutionise industry, have attracted the attention of those men who have investigated the present position and future prospects of the British industries. We read for instance in the Report on the Engineering Trades with regard to the Ford motor-car:

Ford motor-cars in this country before the War were sold at a retail price of £125. It is commonly known that the cost of these cars at the factory in the States is under £40, without including overhead charges. The car itself is sold in the States at about £80. The difference between the price of sale in the States and the price here leaves an abundant margin for freight and commission. The manufacture of Ford cars is of itself a speciality. It stands alone, both in its cheapness and its huge output. No other manufacturer, either in the States or elsewhere, attempts to turn out a car at anything like this price. The finish is rough, but the materials employed are excellent. Other cars, cheap but better finished, come into this country from the States, the low price being apparently the result of large production on standardised lines.” There was not before the War in this country any known manufacturer who was turning out a five-seated car at £200 retail.

British manufacturers, apparently without exception, have aimed at producing a much better finished car, and have paid less attention as yet to the wants of the man who does not care for appearance provided that the car will run, nor have they been prepared to sink the very large capital in machinery and stock which is absolutely necessary for the production of a very cheap car.

The motor-car trade in this country is still not fully developed and its selling expenses are still abnormally high, and until the car takes a normal place as an ordinary trade product it will naturally be open to severe competition from abroad. A car which can be sold at £80 in the States can hardly be kept out of this country except by direct prohibition.

Other Government Reports confirm the views expressed in the Engineering Report. We read for instance in the Report of the Committee on Commercial and Industrial Policy after the War (Cd. 9035), published in 1918, on p. 11:

The relatively stationary condition of the British iron and steel industry in respect of production and its declining position in the world's trade are ascribed by the Departmental Committee on the Iron and Steel Trades in part to the deficiency of the United Kingdom's natural resources of iron ore, but primarily to the more modern character, better organisation and greater efficiency of the German and American industries in respect alike of the acquisition and development of supplies of raw materials, of production and of distribution. The Committee remark that the American and German iron and steel industries are of relatively recent growth and have throughout been organised for large scale production, and small installations held and worked by individual owners are comparatively unknown. The individualism of the British character has often led the iron and steel manufacturer to prefer to retain personal control over a small and relatively inefficient works rather than pool his brains and capital to the greater ultimate advantage of the industry.

The iron and steel manufacturers of Germany and

America have developed their industries on an immense scale, aiming at the production of large quantities of uniform articles rather than at variety of output. Large units specially designed for cheap production have been laid down. On the other hand expansion in the United Kingdom has generally meant the remodelling and extension of existing works. Further the efficiency of the iron and steel plants of the United Kingdom is stated to be, as a result of several distinct factors, very far behind that of their American and German competitors, the production of small units being naturally less, the expenditure of labour greater and the appliances frequently inadequate.

Attention is called by the Iron and Steel Trades Committee to the fact that the production of pig-iron per blast furnace per annum in the United Kingdom ranged in 1915 in England and Wales from 33,300 tons in the Lincolnshire and Leicestershire districts to 65,000 tons in South Wales, whilst in the United States in the same year the range was from 80,000 tons in Alabama to 135,900 tons in Illinois. Corresponding figures for Germany are not available for later than 1911, but in that year the range was from 45,700 tons in Lorraine and Luxemburg to 67,400 in Rhineland-Westphalia, and there is no doubt that these figures had been very considerably increased prior to the outbreak of War.

Production in Germany and the United States is controlled by very powerful combinations—in the former country by the Stahlwerksverband, a combination primarily for selling purposes, but regulating certain classes of production and allocating orders amongst its constituent members so as to concentrate and specialise production as far as possible, whilst in the United States the United States Steel Corporation—an actual consolidation—controls an output of iron and steel greater than the whole output of the United Kingdom and co-operates with other powerful interests.

The views expressed in the Report quoted as to the great superiority of the methods employed in the United States, and also in Germany, for producing pig-iron are strikingly confirmed in the Report of the Departmental

Committee on the Iron and Steel Trades of 1918 (Cd. 9071) for we find on p 25 of that Report the following extraordinary table

PRODUCTION OF PIG-IRON PER FURNACE PER ANNUM.

United Kingdom, 1915		*United States*, 1915.	
Cleveland	45,800 tons	New York	120,300 tons.
Durham	39 400	Pennsylvania	106,700 „
Cumberland	40,900	Alabama	80,000 „
Lincolnshire and Leicestershire	33,300	Ohio	117,100 „
South Wales	65,000	Illinois	135,900 „
Scotland	15 500		

Production on the largest scale enables America to produce pig-iron as cheaply as Great Britain although the wages of the American workers are far higher than those of the British workers

The inferiority of England's mechanical outfit may also be seen from the following figures which are taken from p 7 of the Government Report on the Position of the Electrical Trades after the War

	Great Britain	*Germany*
	£	£
Total electrical products	22,500 000	60 000,000
Exports	7,500 000	15,000,000
Imports	2 933 000	631,000
Consumption of home made machinery	15 000,000	45,000,000

THE CONSEQUENCES OF INSUFFICIENT OUTPUT

I think I have shown with sufficient fulness in the preceding pages that production per man is approximately three times as great in the United States as it is in the United Kingdom that one American worker produces about as much as three English workers engaged in the identical occupation and that England's extraordinary inferiority in output per worker is due partly to the employers and partly, or rather principally, to the attitude of the workers who have hitherto antagonised the increase of output In some industries output per man has of late years increased, but it has not increased sufficiently quickly. In others it has remained virtually stationary, and in some it has actually declined, notwithstanding great mechanical improvements made A striking instance of the reduced output per worker is that of the coalmining industry, regarding which the official figures of output per man both in England and in the United States, have previously been given.

The relative lowness of output in the United Kingdom is principally due to the attitude of the workers The British workers have hitherto endeavoured to keep output low by deliberately going slow and by opposing the introduction of improved machinery, believing that a greatly increased output was harmful to labour They argued that there was so much work to go round and no more that the introduction of improved machinery or the acceleration of existing machinery would enable one man to do the work of two that therefore the doubling of output all round would lead to the dismissal of one-half of the workers. That argument would be perfectly correct if the needs of man were fixed and unalterable. However, human requirements are unlimited. Improvements in machinery and in output may possibly lead to momentary unemployment in certain cases, but as a rule improved production leads, in the first place, to the cheapening of goods, and the cheapening of goods brings about an enormously increased demand. When watches were made by hand, only the wealthy few possessed a watch. The introduction of watch-making machinery may have displaced a number of skilled watch-makers of the old type, but it has enormously increased employment in the watch trade, and has brought the factory-made watch within reach of the poorest labourer. It is not in the interest of the masses that the things which they require are scarce and dear but plentiful and cheap. Restriction of output creates scarcity and dearness. Increase of output creates plenty and cheapness.

Of course organised labour can keep wages high by limiting the number of workers and by limiting the quantity of goods produced. That policy would be immensely profitable if it was restricted to a relatively small number of workers. For instance the boot-makers might conceivably enrich themselves very greatly by limiting output to such an extent that a pair of boots would cost £10. As boots are a necessity, the whole of the community might be made tributary to the boot-workers. However, other trades would, of course, follow the boot-maker's example, and the result would be that not only boots, but clothes, shirts, food—in short, everything—would be scarce and dear.

The fact that the policy of limiting output is extremely harmful to the workers, that it impoverishes them as soon as it becomes general, can easily be shown by an example. Let us imagine that there is a small island out of reach of other countries, and let us assume that it is inhabited by eleven people. Five produce food, five produce clothing of every kind, and the eleventh man stands between the two groups. He is the capitalist. He organises the various activities of the inhabitants, and keeps a general shop. He pays wages both to the food-producers and to the producers of clothing. Wealth consists in an abundance of useful and necessary things. If the ten producers produce to the utmost there will be plenty of food and clothing for all and consequent happiness, whether the wages paid to the ten workers are high or low. If one of the ten producers succeeds in obtaining from the capitalist manager an unduly high payment for his produce by restricting his output, the other nine workers will become tributary to the tenth man. He will flourish at the cost of the rest But if the other nine imitate his example—and they will probably do so—the capitalist may be compelled to pay high wages to all, but there will be little food and little clothing There will be general poverty and dissatisfaction Of course, if the capitalist should obtain an undue share of the things produced by labour the ten workers would suffer. However, even the capitalist can consume only a limited amount of food and can use only a limited quantity of manufactured goods

Wealth, rightly considered, consists not in money, not in coin not even in precious metals but only in useful and necessary articles The value of wages consists in their purchasing power Their nominal amount is a matter of quite secondary importance High wages need by no means mean plenty That may be seen by the example of Russia, where, under the Bolshevik régime, fabulously high wages are paid As in the past the productive power of the Russian workers was low, Russian wages also were naturally low In consequence of the Bolshevik revolution the productive power of the Russian workers has been diminished very greatly, but their wages have risen so enormously that some men are paid £20 for a single day's work However, as general production has diminished, the higher money wages received by the Russian workers are naturally quite useless to them.

After all, a nation is like a great co-operative society. The workers are paid, not in cash, but in goods, for money is merely a symbol. Trade is a disguised form of barter. A man who produces boots is paid for them, rightly considered, not with money, but with a certain quantity of clothes, food, etc Prosperity consists, not in high money wages, but in high consumption, and high consumption is obviously impossible unless there is high production.

Those who advocate the limitation of output frequently say that that policy is necessary because the home market and foreign countries can absorb only a certain quantity of goods, that over-production brings about a fall in prices and a fall in wages. The workers in general have been suffering for years not so much from over-production as from under-production, and in consequence of under-production there has also been under-consumption. A single American worker produces approximately as much as three English workers. Nevertheless, the proportion of goods exported from America is very much smaller than the proportion of goods exported from England. It follows that in the United States consumption is three times as great as consumption in England, for the goods produced are not wasted. Roughly speaking, an American buys three pairs of boots and three shirts and three chairs, etc., for every single one bought by the average British worker.

Plenty of necessary and useful goods betokens prosperity and constitutes prosperity. Hitherto British workers have endeavoured not to create an abundance of useful and necessary goods, but to create an artificial scarcity in the desire for securing for themselves high money wages. Now in the United States, where the limitation of output is scarcely known, and where production per worker is about three times as great as production in England, wages, broadly speaking, are approximately three times as high as in this country. At least, that was the position up to the outbreak of the War. Of course, under normal conditions production and wages go hand in hand. High production means high wages, and low production means low wages. No worker can hope to earn more than he produces net, whether he works under a capitalistic régime or under a Socialist form of government. The employer, whether it be a private person, or a limited company, or the State, can at the utmost pay to the workman the whole produce of his labour, for the employer has to provide the material used and the general factory expenses. Now, the net output of the British and American workers compared as follows according to the British and American Censuses of Production

	Net Output per Worker per Week.					
	United States in 1909			*United Kingdom in 1907*		
	£	s	*d*	£	s.	*d*
Boots and shoes	3	10	0	1	7	[illegible]
Cardboard boxes	2	15	0	1	0	6
Butter and cheese	8	3	0	2	8	1
Cement	4	17	8	2	10	10
Clothing	4	7	4	1	3	11
Cocoa, chocolate and confectionery	4	18	5	1	12	3
Cotton goods	2	13	9	1	10	6
Clocks and watches	4	3	0	1	7	9
Cutlery and tools	4	1	6	1	8	1
Dyeing and finishing textiles	4	4	3	1	18	11
Gasworks	11	16	7	4	1	1
Firearms and ammunition	4	9	2	2	2	8
Gloves	3	10	9	1	11	2
Hats and caps	4	1	10	1	5	10
Hosiery	2	2	8	1	3	5
Leather tanning and dressing	4	13	1	2	5	0
Lime	3	2	4	1	13	5
Brewing and malting	19	10	5	6	7	3
Matches	7	3	1	1	13	0
Paint, colours, and varnish	12	9	3	3	16	2
Paper	5	3	5	2	2	8
Pens and pencils	4	5	9	1	9	8
Printing and publishing	7	16	11	3	13	1
Railway vehicles	4	0	5	2	7	5
Silk goods	3	9	3	1	1	2
Soap and candles	11	7	8	2	19	8
Average per head for all the industries enumerated	5	[illegible]	7	2	3	1

No employer of labour, whether it be a private employer or the State, can possibly pay to a worker a wage exceeding the total value of his production. The foregoing table explains why before the War British wages were low and American wages were high. It explains why American wages were approximately three times as high as British wages. The British workers in cardboard boxes whose net output averaged £1 per week could, of course, on an average earn no more than £1 per week in wages, even if the employer or the State gave them the whole produce of their labour, leaving capital without any return. The British workers in boots and shoes, whose net output averaged £1 7s. 4d. per week could, of course, earn on an average no more than that low amount. At the same time there were, of course, specially skilled workers who, in the cardboard box trade, would earn more than £1, and in the boot and shoe trade more than £1 7s. 4d. Still the average payment of the workers in the various trades cannot exceed the net produce of their labour without bringing about the bankruptcy of the employer, whether it be a private employer or whether it be the State. After all, no man and no nation can consume more than is produced.

CHAPTER XXIV

LABOUR UNREST: ITS CAUSES AND ITS PERMANENT CURE*

I. THE CAUSES

THE British industrial position is becoming exceedingly serious and disquieting owing to what is loosely called the "unrest" of labour. This unrest is unprecedented both in extent and in character. It has two very different aspects: an economic and a political one. On the economic side the workers have demanded and are demanding simultaneously vastly increased wages and a great reduction in the hours of labour, and apparently there is no limit to their claims, for every concession, however far-reaching, is treated by them as merely a stepping-stone towards further and greater ones. On the political side the workers have demanded the abolition of private enterprise, the confiscation of private wealth, the nationalisation of the most important industries, and they have more than once threatened that they would bring the national industries and the national life to a standstill unless the Government carried out at their dictation and without delay certain legislative or administrative measures. The intervention of labour in purely political matters is becoming more and more frequent and its attitude more and more dictatorial. Some time ago a member of an important trade union said to me: "The State? Bah! *We* are the State." The organised workers have begun to challenge not merely the rights of the employers, of the capitalists, whom they habitually treat as if they were labour's worst enemies, but they have threatened more than once to make war upon society, upon the State and upon the nation unless their requests were carried out immediately and without discussion. It has become the custom among the workers to address at every opportunity an ultimatum to the Government demanding its unconditional surrender.

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* From the *Fortnightly Review*, July, 1919.

The so-called unrest of labour is obviously an after-effect of the War, for various countries are experiencing labour troubles which closely resemble those of Great Britain.

In the past there have been periods of acute and widespread labour unrest. However, the present campaign of labour is unprecedented in character, because its spokesmen frankly state that no rise in wages and no reduction in working hours will satisfy them, that their principal aims are not economic, but political. For instance, in a Memorandum on the Causes and Remedies for Labour Unrest, signed on behalf of labour by the Rt. Hon. Arthur Henderson and Mr. G. D. H. Cole and presented to the National Industrial Conference (the text is given in *The Times* of March 27, 1919), we read:

> The fundamental causes of labour unrest are to be found rather in the growing determination of labour to challenge the whole existing structure of capitalist industry than in any of the more special and smaller grievances which come to the surface at any particular time.
>
> These root causes are twofold: the breakdown of the existing capitalist system of industrial organisation, in the sense that the mass of the working class is now firmly convinced that production for private profit is not an equitable basis on which to build, and that a vast extension of public ownership and democratic control of industry is urgently necessary.
>
> [illegible] second primary cause is closely linked with the

first. It is that the workers can see no indication that either the Government or the employers have realised the necessity for any fundamental change, or that they are prepared even to make a beginning of industrial reorganisation on more democratic principles . . .

It is essential to question the whole basis on which our industry has been conducted in the past and to endeavour to find, in substitution for the motive of private gain, some other motive which will serve better as the foundation of a democratic system. This motive can be no other than the motive of public service. . This cannot be done so long as industry continues to be conducted for private profit, and the widest possible extension of public ownership and democratic control of industry is therefore the first necessary condition of the removal of industrial unrest.

A series of general suggestions for removing these causes of discontent is given in the Memorandum. Among them are the following:

A substantial beginning of the institution of public ownership of the vital industries and services. Mines, railways, docks, shipping, etc., should be at once nationalised. Key industries and services should be at once publicly owned. There should be a great extension of municipal ownership and co-operative control of local services.

A graduated levy on capital with an exemption for property up to £1,000.

This authoritative declaration of faith, which is representative of many similar statements, shows that the present unrest of labour cannot be cured by the usual expedient of readjusting wages and working hours.

In view of the uncompromising temper and the reckless demands of labour, many believe that nothing but a sharp and decisive struggle between capital and labour can re-establish workable conditions in the industrial world. Force is not always a remedy. Methods of violence should be avoided, if possible. A labour war may be almost as disastrous as a foreign war. Hence it will perhaps be best to consider the present labour unrest, not as a revolt against society and against the State, but as a disease, or as a symptom of a disease. Consequently, the question arises whether that disease is curable only by violent means or by gentle remedies.

In cases of serious illness purely symptomatic treatment is out of place. I am inclined to think that it is possible to reconcile permanently capital and labour. However, before considering what I believe may prove a practicable and a permanent remedy for the grave trouble which threatens the body economic and the body politic of the nation, we should study its causes and the doctrines by which the labour world at present is guided. That study will clear the ground. Let us therefore first of all carefully examine the aims and claims of the workers, so that we may know which of labour's aspirations are justified and which are not justified, and let us take particular note of the authoritative views of some of the most eminent statesmen, business men and economists who have shown themselves the sincere friends of labour. Europe may learn much from America. Let us therefore give special attention to the lessons which we may learn from the Great Republic.

The mind of the labour world both in Great Britain and abroad has for decades been filled to saturation by the anti-capitalist doctrines of that prince of agitators, Karl Marx. The important Memorandum signed on behalf of organised labour by Messrs. Henderson and Cole is purely Marxian in aim and spirit. It "places in the foreground the demand 'to challenge,'" which means to abolish, "the whole existing structure of capitalist industry," and to tax private capital out of existence by a "graduated levy."

The greatest statesman and the greatest democrat of modern America was Abraham Lincoln. He started life as a lumberman in the utmost poverty. He rose to eminence by his exertion, noble character, and genius, and he died as President of the United States as a poor man. He ever was the champion of the oppressed and of the suffering Labour had no greater and no wiser friend than him.

Socialism, on its destructive side, means impoverishment of the rich, on its constructive side it means government by an all-powerful bureaucracy At the time when Lincoln arrived at power the anti-capitalist doctrines of Marx had spread far and wide, and had become immensely popular with the working masses in the Old World and in the New Lincoln clearly recognised the fallacy and danger of Marxian Socialism, and opposed a sane democratic individualism to the doctrines of whose who, while preaching hatred and envy to the wealthy desired to place all the living energies of the nation under a deadening bureaucratic control Lincoln saw in capital and labour, not enemies, but two partners of whom labor was by far the more important, and he pointed out the unwisdom of antagonising capital and enterprise and hampering the accumulation of wealth While the collectivist doctrines of Marx spread all over Europe, the individualist views of Lincoln conquered the United States. They are worth studying because they have guided, and are still guiding, the American nation, and particularly because the unprecedented economic success of the United States is largely due to their policy of giving the freest play possible to the energies of the individual and of restricting the interference of the State in economic matters to the absolute minimum. The absence of a violent antagonism between capital and labour, of the "class war" preached by Marx, has been a tower of strength to the American industries.

Lincoln had evolved a philosophy of his own about the rights of capital and the rights of labour. In 1859 and 1860 he formulated his views on several occasions. His words were:

> That men who are industrious and sober and honest in the pursuit of their own interests should after a while accumulate capital, and also if they should choose, when they have accumulated it, to use it to save themselves from actual labour and hire other people to labour for them is right. It is best for all to leave each man free to acquire property as fast as he can. Some will get wealthy. I do not believe in a law to prevent men from getting rich; it would do more harm than good. So while we do not propose any war upon capital, we do wish to allow the humblest man an equal chance to get rich with everyone else.

Lincoln regarded the worker as the normal man, and the interests of labour as supreme, stating:

> Labour is prior to and independent of capital. Labour can exist without capital, but capital could never have existed without labour. Labour is the superior—greatly the superior—of capital. Henceforth educated people must labour. Otherwise education itself would become an intolerable evil.

In his message to Congress of December 186[illegible], Lincoln stated:

> Labour is prior to, and independent of, capital. Labour is the superior of capital, and deserves much the higher consideration. Capital has its rights, which are as worthy of protection as any other rights. There is, and probably always will be, a relation between labour and capital producing mutual benefits.

On March 21, 1864, in a reply to a committee of working men, Lincoln read to them this part of his message to Congress, and added:

> The strongest bond of human sympathy, outside of the family relation, should be one uniting all working people, of all nations, and tongues, and kindreds. Nor should this lead to a war upon property or upon the owners of property. Property is the fruit of labour. Property is desirable, is a positive good in the world . . . Let not him who is houseless pull down the house of another, but let him work diligently, assured that his own shall be safe from violence when built.

These phrases sum up the economic policy which the United States have unswervingly pursued for decades.

The individualist policy of the United States has borne excellent fruit. The Great Republic has prospered marvellously, and has been singularly free from Socialist troubles. Lord Bryce wrote in his standard work, *The American Commonwealth*:

> There are no struggles between privileged and unprivileged orders, not even that perpetual strife of rich and poor which is the oldest disease of civilised States . . . No one of the questions which now agitate the nation is a question between rich and poor. Instead of suspicion, jealousy, and arrogance, embittering the relations of classes, good feeling and kindliness reign.
>
> The agitation of the last few years has been directed, not against the richer sort generally, but against incorporated companies and a few wealthy capitalists who are deemed to have abused the powers which the privilege of incorporation conferred upon them, or employed their wealth to procure legislation unfair to the public . . . Property is safe, because those who hold it are far more numerous than those who do not.

The soil of the Great Republic has proved singularly uncongenial to the destructive doctrines of Marxian Socialism. That is a significant and most important fact which is worth pondering about.

It will perhaps be best if we study first the mistaken aims of labour, which have unfortunately filled the mind of the workers, and then explore the road which may lead to permanent industrial peace and to general prosperity.

CAPITALISM IS AN EVIL.

Those labour leaders and workers whose judgment has been clouded and warped by Socialistic teachings complain about the constant and rapid growth of capital, about its aggregation and concentration, and about the increasing wealth of the rich, as if wealth in itself was an evil.

Modern industry requires the investment of gigantic and constantly increasing amounts of capital to provide the complicated, powerful and very costly machinery with the use of which modern men make a living. Moreover, as a large factory can work far more efficiently, produce more cheaply and pay higher wages than a number of small ones, an irresistible tendency has arisen towards the aggregation and concentration of capital. This tendency is beneficial to the workers and to the nation as a whole. It can be stopped only by stopping industry. One of the most successful business men of modern times was Mr. Andrew Carnegie. He has been equally eminent as a captain of industry and as a philanthropist. He was a democrat of the democrats. He rose from the utmost poverty. His parents had to work hard for a mere bodily subsistence. He himself started life as a labourer. Mr. Carnegie could therefore look at industrial problems not merely from the point of view of the employer and of the philanthropist, but also from that of the worker. Hence his opinions were of the greatest value to both employers and employed. Mr. Carnegie wrote in his *Gospel of Wealth* (Mr. Gladstone provided the title of that book):

We conclude that this overpowering, irresistible tendency towards aggregation of capital and increase of size in every branch of product cannot be arrested or even greatly impeded, and that, instead of attempting to restrict either, we should hail every increase as something gained, not for the few rich, but for the millions of poor, seeing that the law is salutary, working for good and not for evil. Every enlargement is an improvement, step by step, upon what has preceded. It makes for higher civilisation, for the enrichment of human life, not for one, but for all classes of men It tends to bring to the laborer's cottage the luxuries hitherto enjoyed only by the rich, to remove from the most squalid homes much of their squalor, and to foster the growth of human happiness relatively more in the workmen's home than in the millionaire's palace It tends to make the poor richer in the possession of better things, and greatly lessens the wide and deplorable gulf between the rich and the poor. Superficial politicians may, for a time, deceive the uninformed, but more and more will all this be clearly seen by those who are now led to regard aggregations as injurious.

The modern world, in which the prosperity and well-being of the masses depend upon an enormous and most costly mechanical outfit, requires the free use of a vast amount of liquid wealth, of capital. Now, capital itself, however great, is of little use unless it is judiciously employed by far-sighted practical men, for it is far easier to waste money on worthless objects than to use it wisely. Nowhere is the reckless waste of money more noticeable than among the Government officials to whom the Socialists would entrust the direction of the national industries But then, of course, they are not spending their own money, but that of the taxpayer. The judicious handling of large amounts of capital is a business. It requires certain high qualifications which are possessed only by a few specialists. Men who possess these special qualifications are called capitalists. The welfare of industries and of nations depends not only on the possession of able engineers, inventors, chemists, workers, etc., but also, and particularly, on the possession of able capitalists who act as organisers in the industrial commonwealth. Mr. Carnegie wrote in his *Gospel of Wealth* :

Able men soon create capital; in the hands of those without the special talent required, capital soon takes wings. It is a law as certain as any, that men possessed of this peculiar talent for affairs, under the free play of economic forces, must of necessity, soon be in receipt of more revenue than can be judiciously expended upon themselves.

The modern capitalist is, as a rule, not a "drone," as the Socialists tells us, not a man who leads an aimless life of vulgar self-indulgence, but he is in the first place, and sometimes exclusively, a worker and an organiser, a creator of wealth and of industry and of general prosperity. Mr. Carnegie has told us in his *Empire of Business*:

The modern millionaire is generally a man of very simple tastes and even miserly habits. He spends little upon himself, and is the toiling bee laying up the honey in the industrial hive, which all the inmates of that hive, the community in general, will certainly enjoy. The millionaire who toils on is the cheapest article which the community secures at the price it pays for him—namely, his shelter, clothing, and food.

Mr. Carnegie shrewdly added:

Here is a remarkable fact, that the masses of the people in any country are prosperous and comfortable just in proportion as there are millionaires.

Capital consists in wealth usefully and reproductively employed, and the capitalists are the managers of that great creative and fertilising force. Great Britain suffers, not from a superabundance of capital and of capitalists, as so many deluded labour leaders allege, but from an insufficiency. Wealth and income, both absolute and per head of population, are far greater in the United States than in the United Kingdom. Before the War, American wages were from two to three times as great as they were in the identical trades in Great Britain. As the cost of living was only slightly higher in the United States than in England, the American workers were infinitely more prosperous than the British workers. The greater prosperity of the American workers was due to the fact that they produced per head from two to three times as much as did the British workers engaged in the identical callings, as I have shown very fully in this book. The greater output of the American workers was made possible and easy by their employing more perfect machinery, and from two to three times as much horse-power per thousand workers with which to set it in motion, as I have shown very fully in previous chapters by analysing the British and American Censuses of Production of 1907 and 1909. The Americans have both more perfect machinery and far more power with which to drive it, because a much larger amount of capital is invested in the American industries than in the British industries An analysis of the capital employed in the British and American industries, based upon the British and American Censuses of Production yields the following most interesting, most important, and most valuable results

UNITED KINGDOM IN 1907.

Capital invested in the manufacturing industries £1,400,000,000 to £1,600,000,000, say	£1,500.000,000
Persons engaged in same	7,087,123
Wage-earners ditto ditto	6,493,129
Capital per person engaged	£212
Capital per wage-earner	£246

UNITED STATES IN 1909.

Capital invested in the manufacturing industries $18,428,271,000	£3,685,654,000
Persons engaged in same	7,678,[illegible]78
Wages-earners ditto ditto	6,615,046
Capital per person employed, $2,415	£483
Capital per wage-earner, $2,786	£557

It will be noticed that the capital per worker is from two to three times as great in the United States as in the

United Kingdom. We can therefore not wonder that output and wages per worker also are from two to three times as great in the United States as in Great Britain.

The British Census of Production stated

> The aggregate of all industrial capital arrived at—viz., £1,400,000,000 to £1,600,000,000 includes both the value of land, buildings, and plant, and the value of the working capital used in the various enterprises.

The startling difference between the British and American capital employed per worker in industry is therefore not due to a great understatement on the part of the British Census-taker. The British industries suffer, not from a plethora of capital, but from its insufficiency, from financial anæmia. Yet there are labour leaders who advocate the diminution and even the destruction of capital in the interest of and for the benefit of the workers.

The steady growth of population, the constant increase in the requirements of an increasing number of people which is brought about by the increasing wants felt by men who live in a period of advancing civilisation, require a constant and rapid increase in the income of the nation and of the individuals composing it. That rapid increase in income can be secured only by a correspondingly rapid increase in production, which in turn can be brought about only by a rapid increase in capital invested in factories, warehouses, machinery, railways, shipping, etc. The very full and reliable American statistics (unfortunately, no corresponding statistics exist for Great Britain) enable us to gauge the yearly capital requirements of industries. The capital invested in the American industries amounted at the Census of Production of 1909, to $18,428,270,000, or to £3,685,654,000. It amounted, at the Census of Production of 1914, to $22,790,979,937, or to £4,558,135,587. It follows that during the five years from 1909 to 1914 the capital invested in the American industries was increased by the gigantic sum of £872,481,587. That huge sum of money, required by the American manufacturing industries, had to be found by the capitalists, and it came, of course, out of profits. However, this is not all In addition to this sum which actually was added to the value of the American industrial outfit in the form of new buildings, machinery, etc., at least as large a sum was added to it in the form of renewals and repairs, while an additional huge amount was spent in the erection of buildings and machinery which proved unprofitable, became disused and was therefore excluded from the Census figures. Capitalists' profits have evidently their uses

The most eminent American economists share Mr Carnegie's opinion that the great capitalists, far from being the enemies of society, are indispensable in modern business, that what the Socialists sneeringly call "capitalism" is not a curse, but a blessing. For instance, Professor Hadley, the President of the celebrated Yale University, wrote in his excellent book *Economics*:

> To the mediæval economist the business man was a licensed robber, to the modern economist he is a public benefactor . . To-day we believe that money is made on a large scale by doing the public a service If a man's goods command a high price, we assume that he has met an actual need. If this price furnishes him a large margin of profit, we believe that he has so organised the labour under his control as to diminish not only his own expenses, but the actual labour cost of producing the goods. So confident are we of the substantial identity of interest between the business man and the community as a whole that we give our capitalists the freest chance to direct the productive forces of society to their own individual profit. Even the mistakes of private enterprise may prove a means of progress to society, since they show at comparatively small cost what is to be avoided in the future.

The fact that the present organisation of capital is the result of historical development, and that the present forms have survived while others failed, is the strongest proof of their vitality. . . . While it is undoubtedly true that the various rights of the capitalist depend upon the existence of a civilised society which maintains them, it seems equally true that the existence of a civilised society in the stress of the struggle for existence among different members of the human race depends, for the present at any rate, upon maintaining the rights of the capitalist.

Many labour leaders and workers, while acknowledging the necessity of abundant capital, object to the individual capitalist. They assert that the capitalist employer autocratically directs industry in accordance with his personal will and whim. That view is totally mistaken. The most powerful and most autocratic capitalist has a still more powerful and more autocratic master. Lord Leverhulme, the English soap king, who started his career as a poor grocer's assistant, stated on December 7, 1917, at Bolton, addressing a meeting largely composed of workers:

You will perhaps think I am a master, and perhaps that men who are working for the company of which I am chairman come under the description of servants. Think a little more deeply for a moment. There is not a man in this room, not one in this church, who has so hard a taskmaster over him as the so called masters have. So far as this world is concerned, the master of every employer of labour in Bolton and in the United Kingdom is the consumer. You can see this every day. Articles go up in demand, and the enterprise that produces such articles is flourishing. Then the consumer ceases to demand that article, takes to something else, and the man who, as employer, was prosperous and successful is reduced to the Bankruptcy Court, and is as much discharged as the so-called servant. . . . There is not a master in the United Kingdom to-day who has not a supreme master over him in the form of the consumer.

A man becomes a great capitalist because he meets a great public want and renders a great public service, and frequently he has to fight the most determined opposition of those whom he wishes to benefit. Hostile crowds smashed the textile machinery and tried to prevent the building of the railways. Railway surveys had often to be made at night. A democratic Government would probably have refused to undertake so unpopular a measure as the introduction of mechanical spinning and weaving and of railway-building It is a fallacy to describe the great capitalist as an exploiter and a curse to society.

Private investors also who do not manage industrial and commercial undertakings are not merely drones The capital of the investors is, as a rule, the result of their own labour and thrift or of the labour and thrift of their forbears, and they provide a large part of the funds which are employed by managing capitalists, financiers, etc., for the development of commerce and of industry.

The manufacturer, unlike the worker, receives no regular, fixed, and secure pay, but a variable one. He is paid by result If he is unskilled or incompetent, he will go bankrupt if he is moderately competent, he will obtain a moderate income, if he is highly competent, he may become wealthy Payment by result is a mighty stimulus. The effort to make money is a most powerful incentive to work in the service of the community—is, in fact, the most powerful incentive the world has yet known. Great wealth is accumulated in industry by great services rendered to society. Mr. Carnegie obtained a gigantic fortune by creating in the United States by far the greatest iron industry in the world. Millions of Americans have become prosperous owing to that man's business genius.

The factories and workshops which have arisen owing to Mr. Carnegie's extraordinary business ability employ hundreds of thousands of workers. He has created whole towns. Countless millions had to be sunk by Mr. Carnegie and his associates in creating that great American industry. Mr. Carnegie started life as a penniless worker, and so did most of his associates. Wherefrom, then, did Mr. Carnegie and his co-Directors get the enormous funds required for creating the greatest iron industry in the world? Chiefly out of profits, and these profits enabled the Directors to pay substantial wages to a vast army of workers. Professor Hadley pithily wrote: "Accumulations of capital have their chief usefulness as a means of producing income." The colossal profits of the Carnegie enterprise benefited chiefly the workers. The Carnegie wealth is a trifle compared with the wealth which Mr. Carnegie has distributed among the American people.

Wealth is created by the co-operation of various factors—namely, capital, labour, technical ability, and the community. Labour is one of the factors, and it is, of course, indispensable. However, directing and organising ability is equally indispensable, for labour left to itself produces only little. If a large factory experiences misfortune, what happens? A new manager is appointed. He may change the organisation and the machinery, but he will keep on the workers. If he is capable, he will make the factory exceedingly prosperous. The same workers who were working with a loss and who were threatened with dismissal are producing prosperity. The success of industries, as of armies, depends principally on the leaders. A good General makes a good army, and he is worth as much as an army, although the soldiers do the fighting.

The assertion that labour creates all wealth is obviously untrue. This was very neatly pointed out by Lord Leverhulme in an address to Liverpool workers delivered on November 23, 1917. He said:

Does any man begrudge Ford his five millions sterling a year that he is making? Fancy! that is £100,000 every week. Does anyone begrudge it? If any do I could imagine them saying to themselves: "It is true Ford serves the public with a cheap car and, for the price, a good car. It is true Ford serves his workers in his factories well, because he pays them double wages; in fact, he starts a boy fresh from school at a pound a day. But, but, but, Mr Ford, you make too much money. . . ."

Now let us imagine a scene at Ford's works. We will imagine that his 20,000 or so operatives—I am not sure how many he has, but we will say 20,000, it may be 40,000—read in the paper that Ford has made five million pounds sterling, twenty-five million dollars, the year before, and they have discussed that fact, and they have come to the conclusion that Mr. Ford is making far too much, and have decided that they will go and interview him, because "labour creates all wealth" say they—"Adam Smith told us so, and therefore this money is not Ford's, we make that money, we ought to have it." They go and wait on Ford, and they lay their case before him fairly, perfectly fairly. Now we will imagine his reply. Now, Ford, I imagine, would say this

"Now, my men, I don't want you to make a penny of this money for me. Go right away and make it for some other motor-man, one of my competitors, who cannot make money for himself, who is perhaps losing money. Leave me right away and go and engage with that man; he will give you nearly all the profit, he is losing money now, or making none. You can make your own terms with him. He will give you at least nine-tenths of the profit, because if he got a tenth he would be content. You go and make him five millions, and perhaps he will give you nineteen-twentieths, perhaps even ninety-nine one-hundredths of it; but you can make your own terms with him. You will get splendid terms from him; in fact, you can dictate your own terms. As to myself, those men who will be sacked from this motor-man who is not making money—why, I will engage them; it will be merely a change over. You men who are making my money will go and make it for these other people; their workmen will come and work for me, and I will pay them double wages as I am paying you, and I will see if I cannot make as much money without you as with you."

THE POVERTY OF THE WORKERS.

According to the teachings of Marxian Socialism there is under the capitalist régime a "law of increasing misery," according to which the rich grow constantly richer and the poor constantly poorer. Its absurdity is clear. On the other hand, it is equally obvious that wealth is unequally distributed, but so are health, strength, good looks, and talent. An eminent New York merchant, Mr Eugenius H. Outerbridge, stated with American brevity, in an address delivered at Albany, N.Y., on December 13, 1918:

The spirit of unrest has been said to largely spring, not alone from unequal conditions of life, but from what has been called the "unequal *distribution* of wealth."

Undoubtedly what has been meant is the unequal *acquisition* of wealth, but there will always be unequal acquisition of wealth as long as there is unequal *distribution of brains, industry and thrift*, and these are qualities of mind and character which no statutory laws can create or control, but the beneficent exercise of which unwise law can greatly restrict and discourage.

Some are born rich, some well to do, some poor. Some who were born rich become poor, and some who were born poor become wealthy, and it is good that this is so. Mr Carnegie, who was born in a hovel, wrote in his *Empire of Business*:

It is the fashion nowadays to bewail poverty as an evil, to pity the young man who is not born with a silver spoon in his mouth, but I heartily subscribe to President Garfield's doctrine that "the richest heritage a young man can be born to is poverty." I make no idle prediction when I say that it is from that class from whom the great and the good will spring. It is not from the sons of the millionaire or the noble that the world receives its teachers, its martyrs, its inventors, its statesmen, its poets, or even its men of affairs. It is from the cottage of the poor that all these spring. We can scarcely read one among the few "immortal names that were not born to die," or who has rendered exceptional service to our race, who had not the advantage of being cradled, nursed, and reared in the stimulating school of poverty. There is nothing so enervating, nothing so deadly in its effects upon the qualities which lead to the highest achievement, moral or intellectual, as hereditary wealth. . .

The cry goes forth often nowadays—"Abolish poverty," but fortunately this cannot be done and the poor we are always to have with us. Abolish poverty, and what would become of the race? Progress, development would cease. Consider its future if dependent upon the rich. The supply of the good and the great would cease, and human society retrograde into barbarism.

In this world of ours there are opportunities for all. J. D. Rockefeller, the oil magnate, P. D. Armour, the Chicago meat king, C. Vanderbilt, the great railway financier, the founder of the great Morgan banking-house in New York, and Mr. J. M. Pullman, of Pullman Car fame, started business as farm-labourers. T. Edison was a newspaper-boy, the founder of the house of Rothschild a pedlar, the founder of the great Krupp firm a poor smith. The foundation of the vast wealth of the families of Guinness, Bass, Coats, was laid by men who were born poor. Most of the great engineers and inventors were working-men. Sir R. Arkwright, the inventor of the spinning machine, was an illiterate barber. Burns the poet, Cook the navigator, and Brindley the great engineer, were day-labourers. Mr. Asquith, Mr. Lloyd George, General Sir William Robertson, Lord Northcliffe, and countless others, were born in humble circumstances. Half the English peerage has come from the ranks of the toilers. Many of the American Presidents were born in poverty. Poverty, instead of being a bar to wealth and power, to eminence in science and in art, is an invaluable incentive to effort. Men who were born poor have become rich in everything that is worth having.

The Taxation of Wealth.

Guided by their hatred of capital and of the capitalists, many labour leaders advocate the most drastic taxation of wealth. Some wish to tax the wealthy out of existence by a heavy income-tax and by very high death duties. Others, who find this process of abolishing the capitalists too slow and too mild, demand that the State should seize the wealth of the wealthy by what is called "a levy on capital," a measure which is recommended in the Memorandum given in the beginning of this paper.

A high income-tax and high death duties are immensely popular among the workers. The enormously increased imposts which were laid upon the rich in the course of the War were greeted with the greatest satisfaction by the workers, because they imagined that they would rapidly reduce the wealth and income of the capitalists. To their amazement the enormous income tax, super-tax, excess profits tax, etc., led not to the impoverishment of the wealthy, for their capital and their income grew more quickly than ever before. Many workers have, therefore, come to believe that the wealth and income of the capitalists is far greater than was ever suspected.

A little thought should make it clear to all that taxes on the capital and income of the wealthy are apt to lead, not to a shrinkage of their wealth, but to an increase in wealth similar to the amount of the taxes imposed. The wealth of the capitalists is invested chiefly in productive undertakings, such as factories and railways. Their wealth and income serve partly for the satisfaction of their personal needs, but chiefly for the maintenance of the national industry. Let us assume that a manufacturer makes normally a profit of £100,000 per year from his factory; that he pays £10,000 in taxes, spends £5,000 on himself and his family, and employs the remaining £85,000 for repairs, renewals, and extensions of his factory, which give work and wages to a large number of workers. If the State increases the taxes of that manufacturer by £50,000, he will be compelled to increase the selling price of his goods by a similar amount, and will pay his taxes out of his increased profits, for otherwise he will not be able to keep his factory in good going order. If thereupon his taxes are increased by another £50,000, he will proceed to increase the selling price of his wares once more by a similar amount, for otherwise he will become bankrupt and will have to close his factory. Similar considerations apply in the main to death duties, which, though paid by the rich, are treated as a business expenditure which has to be provided for in the price of the goods produced, or in the house-rent, or in the rate of interest charged. It follows that the income-tax, as the taxes on capital, such as death duties, are, as long as possible, paid chiefly by labour without diminishing capital. It would be very dangerous indeed for the workers if the high taxes imposed upon the rich should lead to the shrinkage of the national capital, of which the rich are merely the managing trustees.

An industrial State absolutely requires vast and constantly growing sums of capital invested in productive undertakings. Hence heavy imposts placed upon capital are likely to lead, not to its diminution, but merely to an increase in the price of goods, to a rise in the cost of living. By insisting that enormous taxes should be laid upon the rich manufacturers, merchants, etc., the workers frequently hurt but little the capitalists whose money is invested in commerce and industry, but hurt themselves very much by raising the prices of all goods, house-rents, etc., against themselves.

The capitalists are not merely the managers of the national industries, but they serve at the same time as unofficial tax collectors to the Government. They convert the heavy direct taxes which are laid upon them, and which they cannot pay except at the cost of ruinously reducing the capital required for industry and commerce, into indirect taxes, and these are paid by the people in general in the price of the goods they buy. The workers should learn that by taxing the rich they are taxing themselves, that a high income-tax, high death duties, and a "levy on capital," come out of their own pockets; that they are quite as much interested in strict economy in national and local affairs as the richest income-tax payers.

Of course, there is a limit beyond which prices cannot be raised by the taxation of the rich. When that limit has been passed national decay and ruin begin. When, owing to overgreat taxation the price of British goods has been raised so much that their sale abroad falls off, then the country can no longer pay for the food and raw materials which must be imported. Then the industries of the country come to a standstill. Food becomes scarce, and unemployment and suffering become universal. Bankrupt factories are almost valueless. Unduly high taxes may result, not merely in reducing the private wealth of the few, a matter which is comparatively unimportant, but in destroying the wealth of the nation. A modern industrial State requires vast amounts of capital handled by able capitalists. The diminution of that capital or the elimination of the men who handle it brings suffering to all. That has been shown by the example of Russia. Imbued by the Marxian ideas, the Bolsheviks destroyed the Russian capitalists and in doing so destroyed capital as well. Thus they brought the whole economic life of the country to a standstill and reduced the people to starvation. It is obvious that capital is indestructible, except at the cost of general ruin. Even the poorest labourer pays his share of the income-tax, the super-tax, the excess profits tax, and of the death duties, although he may not know it.

The Limitation of Output.

The workers naturally desire to have good wages, easy hours of labour and pleasant work; to have the advantage of cheap prices and to be able to get plenty of relaxation and amusement. As far as tangible objects are concerned, they wish to have good clothes, good food, good houses, good furniture, etc. Men's comfort and happiness depend, in the first place, on an adequacy of tangible things, for high money wages and easy working hours will not compensate them if they suffer from an insufficiency of food, clothes, etc. Prosperity depends on high consumption, and high consumption is possible only if there is high production.

Unfortunately, many trade unions have endeavoured to create an artificial prosperity for the workers by limiting output. Instead of creating plenty of useful and necessary things, they restrict their production, hoping thereby to keep wages high. The bricklayers, by laying only a few hundred bricks a day, are making houses and house-rent artificially dear. The transport workers, by insisting upon very high wages, raise fares and prevent men abandoning the congested portions of the towns for the suburbs. The coal-miners, by limiting their output, are making coal scarce and dear. Clothes, boots, hats, furniture, etc., are also made scarce and dear by a mistaken policy of restricting output. The dearness of things does not matter very much as long as they are produced in plenty, but their scarcity causes suffering to the masses, whether wages are high or low.

Believing that a limited output serves "to spread the work" and ensures high prices and therefore high wages, many trade unions are hostile not only to speeding up, but even to labour-saving improvement in production, to newer and more efficient machinery which would diminish the laboriousness of the workers' task. The unwisdom of this policy was very tellingly pointed out by President Hadley of Yale University as follows:

> They see that the different workmen in an industrial community compete with one another; they fail to see that they consume one another's products. In consequence of this one-sided view, they favour almost any policy that reduces the intensity of competition among workmen as producers, even though it may ultimately reduce the amount of wealth that can be divided among the workmen as consumers.
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> The economy of the introduction of a machine consists, not in making the old product at less expense and with less labour, but in making a much larger product with the same labour. What is called labour-saving machinery is in fact not labour-saving, but product-making. It can only become profitable by meeting the wants of the community as a whole and not those of a few rich men. . . .
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> If an improvement enables the same number of labourers to produce twice the amount of useful products, it may happen that the price of each product will fall one-half. In this case there is no apparent gain in private wealth; but if the article is a really useful one, there is a great gain in public wealth and social well-being through its increased abundance.
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> The gain from an improvement in production goes chiefly to those who consume the products cheapened by such an improvement. If an improvement in production is of such a character as to cheapen goods used by capitalists, the gain in such a case goes entirely to the rich. If, on the other hand, the improvement is such as

> to cheapen products used by the labourer, and not by the capitalist, the gain goes entirely to the labourer. Modern improvements belong chiefly to the latter. . . .
>
> When the invention of the railroad enabled one man to do work which formerly required a hundred and a thousand hands, it was supposed that the demand for labour in moving goods and passengers would be greatly diminished. But the railroad system employs far more labourers in proportion to the population than were employed on roads in the old days.

The fact that the increase of output is of the greatest benefit to the working masses is obvious to every practical business man. Mr Carnegie wrote in his *Gospel of Wealth*:

> If there be in human history one truth clearer and more indisputable than another it is that the cheapening of articles, whether of luxury or of necessity or of those classed as artistic, ensures their more general distribution, and is one of the most potent factors in refining and lifting people and in adding to its happiness. . . .
>
> Cheapness is in proportion to the scale of production. To make ten tons of steel a day would cost many times as much per ton as to make one hundred tons; to make one hundred tons would cost double as much per ton as a thousand; and to make one thousand tons per day would cost greatly more than to make ten thousand tons. Thus, the larger the scale of operation, the cheaper the product. The huge steamship of twenty thousand tons burden carries a ton of freight at less cost, it is stated, than the first steamships carried a pound.

Lord Leverhulme wrote in his book *The Six-Hour Day*:

> The hand-loom cotton-spinners in Lancashire declared, when Crompton and Arkwright made their discoveries which have resulted in the present basis of cotton-spinning, that they were being ruined, and some of these men took extreme measures and smashed the models of these inventors. In Samuel Crompton's house you can be shown the hole in which Crompton had to bury his model of his machine from his own class, his own fellow-workmen

living in cottages, his neighbours, who, if they could have got at it, would have smashed it to pieces. What was the fact at that time? Before the inventions of Crompton and Arkwright there were only 8,000 cotton operatives in all England, and no associated trades to speak of going with them. Of course, I am not including in that the wife who did a little bit of spinning for her family at home, as most farmers' wives did. Twenty-seven years after these machines had come into operation—these machines that these men wanted to break up—there were 300,000 workmen engaged and wages had advanced. Eighty years later wages had still further advanced and there were 800,000 men engaged in England in the cotton industry, and to-day wages are higher than ever, and including the associated trades that go with cotton spinning, such as calico printing and the making of the machinery, it is estimated that not less than two and a half millions of people are engaged in the cotton industry in this kingdom.

The workmen have been hostile to innovation, and especially to labour-saving machinery, since the earliest time. Probably the workers of the Stone Age protested when knives and axes made of chipped flints were being replaced by cutting implements made of bronze. Happily the workers have not succeeded hitherto in bringing civilisation to a stand-still by opposing the introduction of improvements in manufacturing by restricting output. Had they succeeded the world might still be in the Stone Age.

THE SIX-HOUR DAY

The efficiency of the workers suffers if the working hours are too long, especially if intense application is needed. The demand for the reduction of working hours to eight, or seven or six a day springs partly from the desire to avoid overtiredness, partly from the wish to have more leisure, partly from the desire to "make work," to keep output low and money wages high. Some agitators and labour leaders talk glibly of a working day of considerably less than six hours. For instance, a four-hours' working day has been recommended. Of course, there is a limit to which working hours can be reduced. Their overgreat reduction may increase the efficiency, health, and strength of the workers very greatly and give them plenty of time for leisure, study and so forth. But if the overgreat reduction of working hours should lead to a corresponding diminution of output, there will be general scarcity and the working classes will suffer. The idea of the six-hour working day was started by Lord Leverhulme. Every demand for a reduction of the working hours to six per day on the part of the workers is accompanied by appealing to his authority. That appeal is frequently quite unjustified, for Lord Leverhulme was very careful not to recommend the general introduction of the six-hour day On the contrary, he declared such a reduction "absolutely impossible and impracticable." He stated in his book

> The adoption simultaneously, in all industries of the United Kingdom, of a six-hour working day is absolutely impossible and impracticable . . . It can only be adopted in such industries as those in which it will, by its application, give lower costs of production by working machinery for longer hours and humanity, in two or more shifts, for fewer hours. The six-hour day, for instance, is not immediately applicable to agriculture, because at present there is little labour-saving machinery used in agriculture.

Professor Hadley pointed out the danger in reducing the working hours as follows

> No international arrangements or protective tariffs will make one loaf of bread serve the purpose of two. An eight-hour law either applies to agriculture, or it does not. If it applies to agriculture, it will make food products scarce. . . . If, on the other hand, the eight-hour

law does not apply to agriculture . . . we shall have more labourers competing for the city work, and more supplies of manufactures to exchange for food. We shall see a larger number of labourers working at starvation rates.

Nations can grow prosperous only through high production. Prosperity cannot be created among the workers by reducing output, either by antagonising machinery or by reducing working hours or by taxing the capitalists.

THE NATIONALISATION OF INDUSTRIES

Men are easily fascinated by sonorous polysyllabic words derived from the Greek or Latin, such as socialisation or nationalisation. In the eyes of many nationalisation is the panacea for all industrial troubles. Those who call most loudly for the nationalisation of mines, railways, etc., are, as a rule, unaware that nationalisation means bureaucratic government, if not bureaucratic absolutism. Hence many demand with the same breath the nationalisation of the principal industrial undertakings and the abolition of all Government control over industry, and condemn officialdom as loudly as capitalism.

It is perhaps of secondary importance to the nation whether the great economic undertakings, such as railways, mines, banks, etc., are owned by the State or by individual capitalists, but it is of the very greatest importance that the enterprises whereby the people live are well managed, for we live in a competitive world. To many the State is a vague omnipotent force. In reality it consists on the administration side of a number of more or less narrow-minded officials who are out of touch with the realities of life, for confinement in a Government office cramps men's views.

The War has glaringly displayed the inefficiency of the bureaucratic machine. In all the combatant countries the bureaucrats had to be replaced by able business men. The credit of bureaucracy has been greatly diminished.

Those who advocate the nationalisation of the principal industries often use Germany as a model. Indeed, of all the nations which have tried the experiment of nationalisation Germany alone has been successful. Her example is the exception which confirms the rule that Government officials are unfit for managing industrial enterprises. The relative success of Imperial Germany in the field of State-managed enterprise was due to the peculiar character of the nation and of its Government The bureaucratic career was practically the only way to power. All the great statesmen of Prusso-Germany, from Stein and Hardenberg to Bismarck, Bulow and Bethmann-Hollweg, came from the ranks of the bureaucracy. While the ablest men in bureaucratic autocracies join the Civil Service, the ablest men in free democracies usually go into politics, business, or the law, leaving the bureaucratic career to the least gifted Besides, Germany's comparative success in nationalisation was due to the submissiveness of a well-drilled people which patiently tolerated the bureaucratic absolutism of its rulers.

Bismarck, who sprang from the ranks of the bureaucracy, expressed a profound contempt for the narrow-mindedness, sleepiness, stupidity, obstinacy, and clumsy interference of the all-powerful bureaucrats He wrote to his father on September 29, 1838.

> I have often seen how well-paid officials waste time and labour in such a way that one might think that the nation existed for their benefit, not they for the service of the nation. The supreme authorities try to combat the evil, but they fail because they cannot overcome the spirit of our administration.

On April 19, 1871, he stated in the Reichstag:

> If I look into the future I am filled with dismay and fear lest the spirit of the nation should be destroyed by the boa-constrictor of the bureaucracy.

On December 12, 1891, he said to a deputation of business men:

> Who are the people who have made all these wretched changes and regulations? High permanent officials, men who are merely consumers, men who neither sow nor reap, men who do not feel where the shoe pinches. Wherever we look we suffer from the disease of bureaucracy.

Dozens of similar expressions might easily be given. For executive and administrative duties which require initiative and common sense Bismarck preferred business men to Government officials as he frequently stated. Bismarck's views are supported by high American authorities. Professor Hadley wrote:

> The man who is in the habit of looking at indirect consequences will be disinclined except as a last resort, to put the business into the hands of a Government whose agents are almost always chosen on other grounds than those of industrial efficiency, and whose methods are much less flexible than those of a private corporation. He will be indisposed to see stringent regulations put in force until he is convinced that milder remedies are inadequate to protect the interests of the public as a whole. . .
>
> Only where the traditions of the Civil Service are such that the best men of the country seek and gain admission to it, independent of party, can we hope that the advantages from Government management of these industries might outweigh the evils. So long as an administration is to any considerable degree swayed by partisan considerations instead of industrial ones every extension of Government activity to new fields must be regarded with grave apprehension.

Mr. Carnegie wrote in his book *Problems of To-day*:

> All that the millionaire can get out of life is superior food, raiment, and shelter. Only a small, a very small,

percentage of all his millions can be absolutely wasted. When the socialist, therefore, speaks of all wealth going back to the State, he proclaims no great change in its mission. The state, sole owner, would use it just as the owners now use all but a fraction of it; that is, invest it in some of the multiform ways leading to the reward of labour. It is simply a question whether State as against individual control of wealth would prove more productive which, judging from experience of State and individual management so far as yet tested may gravely be doubted.

The most successful Government undertakings in Germany were the railways the telegraphs, and the telephone system They were ably managed, but they were far inferior to those of the United States. The American private railways telegraphs, and telephones are by far the most highly developed and the most efficient in the world

The bureaucratic control of industry has everywhere been a failure. A number of Governments have secured for themselves a monopoly in manufacturing and selling tobacco and matches, commodities which are made largely by unskilled labour. The business is a comparatively simple one Yet all those who have travelled in France and in Italy, where the Government manufactures tobacco and matches, have found both absolutely atrocious. A French paper, *The Atlas*, wrote in April, 1914, with regard to the French tobacco monopoly.

> The smoker is obliged to accept with his eyes shut and his purse open everything the State sells him. If the quality is always the same—that is to say inferior—prices are always on the increase.

The French paper *Excelsior* of June 3, 1914, said:

> Smokers who have complained of finding in their packets of superior cut tobacco or of "Caporal Ordinaire" a sock, a glove, a nail, a dead mouse, or other foreign but

unsmokeable ingredients, and those who complain of getting empty cigarette-boxes, or boxes not containing the quantity stated on the outside, may now be reassured. We are informed that at Issy-les-Moulineux, where already some means of control of doubtful efficacy have been tried, an infallible but secret procedure has been adopted which will make it possible to trace easily defective products.

Experience has proved that efficiency and bureaucratic control do not go together. Private undertakings are more efficient than those under bureaucratic direction; because free competition mercilessly eliminates the incapable. Business men become prominent by the same means by which race-horses or boxers come to the front, by proved ability. Promotion in the Civil Service goes chiefly by seniority. While private enterprise automatically eliminates the unfit, bureaucratic management automatically promotes them.

The essence of all business is progress. The essence of bureaucracy is conservatism, the strict observation of forms and precedence and hostility to progress. The Army Clothing Factory and Woolwich Arsenal were in 1914 distinguished by their antiquated outfit and general inefficiency.

Those who rail at private enterprise might reflect upon the fact that the old Governmentalism fell a little more than a century ago. Under individualism, under the much abused capitalist régime the world has far more rapidly advanced scientifically, economically, and politically than during the two thousand years preceding. The omnipotent state which Rome introduced into the world created everywhere stagnation and decline. During and owing to the capitalist régime the workers have passed from slavery to independence, from misery to comfort. The modern world has been created, not by Governmentalism, not by bureaucracy, not by the successors of the *Procuratores* of ancient Rome, but by individual enterprise, which became unshackled about the time of the French Revolution, largely owing to the teachings of Adam Smith. It would be retrogression to fetter the nation once more and to place all its living energies under the dead hand of officialdom.

A number of agitators and of labour leaders have succeeded in persuading large masses of the workers that they produce all the wealth; that they ought, therefore, to possess all the wealth and to enjoy it, and that they ought to have all the power of the State as well. They have succeeded in persuading large masses of the workers that they can very greatly increase their prosperity by producing less, by working fewer hours, and by insisting upon very greatly increased wages paid in respect of greatly reduced output They have succeeded in persuading them that the able organiser of industry, the capitalists, the employers, who have created modern industry, are their deadly enemies that the workers can create a new heaven and a new earth by abolishing capitalism root and branch, and by handing over the management of industry to the omnipotent State, which, it is true, can print unlimited quantities of bank-notes, which simple-minded people mistake for wealth. According to certain labour leaders, the advent of Socialism, which merely means bureaucratic management, will create general prosperity and satisfaction among the workers. There will be a paradise upon earth in which perfect harmony reigns between the directors of industry and the working masses.

Recent events in England and elsewhere have shown that nationalisation is no remedy for labour disputes; that men employed by the State or by the Local Authorities will go on strike as readily as men in private employment. Nationalisation will, therefore, not abolish the differences between the employers and the employed. Nor will it provide abundance if the workers continue their policy of limiting output and increasing wages, a policy which, if pursued to its logical conclusion, will provide them with basketfuls of bank-notes, but with little food, fuel, and clothing. After all, bits of printed paper are not wealth.

Certain leaders have taught the working-men that they can produce general prosperity and contentment, not by increased production but by the gradual, or by the sudden, destruction of the existing order of society. That is a very dangerous teaching. If the abolition of private capitalism, either by legal process or by violent means, should be undertaken and should fail to give the workers increased prosperity in return for reduced work; if the nationalisation of industries should bring about general poverty, want, and dissatisfaction, as is to be anticipated, their misguided leaders will of course not admit that their policy of destruction has been mistaken, but they will blame the managing bureaucracy for the sufferings of the people and hold up to odium the governing officials and reproach them for their incapacity and ill-will. The consequence may be extremely serious. The people roused to fury by their sufferings and their disappointment may proceed to destroy the power which they have put into the place of the capitalists. If, as is to be anticipated, the nationalisation of industries should lead to administrative chaos, general under-production, and economic ruin, the nation would probably drift into anarchism and civil war. The introduction of nationalisation may lead not only to economic disaster, but to political disaster as well.

The policy of organised labour has been mistaken throughout. The nation seems to be drifting towards the breakers. However, there is no reason to despair.

In the following chapter I shall endeavour to show that it is possible to create permanent harmony and co-operation between capital and labour, two forces which at present seem irreconcilable; that it is possible to alter completely and permanently the character and policy of organised labour; that before long the advocates of the "class war" may find their occupation gone for ever.

CHAPTER XXV

LABOUR UNREST: ITS CAUSES AND ITS PERMANENT CURE—*Continued*

II. THE CURE

THERE can be no peace and no contentment in the labour world unless the workers are prosperous. Prosperity means an abundance of the useful and necessary things which men require or desire, means high consumption, and high consumption is impossible unless there is high production. The necessaries, conveniences, and luxuries which the people require can be provided only by intensive production. Various factors at present impede the intensive production which is needed.

Hitherto the British workers have favoured time wages, wages which are based upon the time spent in working, not wages based upon the quantity of goods produced by them. In most callings time wages have a great disadvantage if compared with piece wages. They tend to keep production low and to cause friction between the workers and the management. Professor Hadley, of Yale University, wrote in his excellent book *Economics:*

> Under the system of time wages the workman has no immediate or obvious incentive to increase his output. A large part of the time and strength of the foreman is occupied in keeping the men under his charge up to a proper standard of efficiency. To avoid this difficulty, the introduction of piece wages is the most obvious expedient.

From *The Nineteenth Century and After*, June, 1919.

The views of Professor Hadley are held by the great majority of manufacturers and of independent investigators both in the United States and in England. For instance, the Report of the Departmental Committee appointed by the Board of Trade to consider the Position of the Iron and Steel Trades after the War, published in 1918, stated:

> The method of remuneration of labour must depend intimately upon the conditions peculiar to an occupation. Broadly, the Committee favour a method which will directly and immediately interest the workman in the results of his labour. Piece or tonnage rates should be paid to all classes of workmen whenever possible, and the Committee recommend the establishment of a National Joint Board, representative both of employers and workmen in trades where this system does not exist, to consider and to advise as to the appropriate methods of putting this system into operation in various districts and trades. Evidence has been given to show that the best results have been obtained where wages rates have been regulated upon a sliding scale based on the ascertained selling prices of products.

Guided by their mistaken policy of keeping production low, many trade unionists have hitherto determinedly opposed the introduction of piece wages. The Report of the Departmental Committee appointed by the Board of Trade to Consider the Position of the Engineering Trades, published in 1918, contains the following significant statement of fact and recommendation.

> In order to enable the expert workman to earn during the best years of his life the maximum possible return, it would seem that piece work, or a bonus system on time work, ought to be the foundation as far as possible of all employment.
>
> The trade unions have in the past been very reluctant to admit piece rates. Indeed, even now some of the unions forbid their members to accept piece rates where

these have not previously been in force, and, where piece work has been started, the members are asked to discourage it as much as possible. It has also been evidenced to us that cases have occurred wherein, should the men earn more than time and a third, they have been fined by their Union. . .

In the future it will be all-important that output should be encouraged to its maximum

Organised labour has hitherto favoured payment by time, and has discountenanced payment by the piece, partly owing to the mistaken belief that there was only a certain quantity of work and no more, that to avoid unemployment it was in the best interest of the workers to "spread" the limited quantity of work existing among the largest number; partly because the workers had been taught that the interests of capital and labour are not identical but are antagonistic and irreconcilable, that the capitalists were their enemies, that the workers would benefit themselves by damaging the employers' interests, partly because many of the workers prefer leisurely work to intensive application and exertion.

It is obvious that the workers will no longer oppose high production, that they will no longer oppose the introduction of piece wages and of improved organisation and machinery, and that they will no longer endeavour to reduce unreasonably the number of working hours, if they become convinced that that policy is disadvantageous to themselves, and especially if they should become personally and very strongly interested in high output, in economy of production. As soon as their interests have become identical with those of their employers they will insist upon intensive production and the highest administrative and technical efficiency. A real partnership must be created between capital and labour. Until the interests of employers and employed have become one and indivisible, the workers will, of course, continue to demand the maximum pay in return for the minimum of effort.

Hitherto the workers have been interested almost exclusively in the amount of their weekly pay. They will take a lively and very intelligent interest in the factory in which they are employed as soon as they begin to feel that they are full partners in the concern, and that their welfare is bound up with its efficiency and success. How such an identity of interest might be created between capital and labour, between employers and employed, will presently be shown.

Efficiency of modern production requires not only the use of the most perfect and of the most powerful machinery and the application of science to industry, but requires, before all, the elimination of unnecessary, and therefore purely mischievous, cut-throat competition, the disappearance of small, old-fashioned, and therefore wasteful, installations and organisations—requires production on the largest possible scale. Co-operation and concentration of effort are more powerful factors than competition. Organised co-operation on the largest scale makes for efficiency, excellence, and cheapening of production, while internecine competition among a large number of isolated firms leads to the dissipation of effort, waste, dearness, and general confusion. The fear that the elimination of small independent concerns will inevitably lead to an absolute monopoly of a single organisation which will hold the nation to ransom is scarcely confirmed by experience. The modern tendency of consolidation leads as a rule, not to the establishment of a single gigantic co-operation, but to that of a few. Corporations of very large size will not readily abuse their position, for abuse of power on the part of a gigantic concern is suicidal. It leads inevitably to the rise of competition, which will undersell and destroy the short-sighted corporation which wishes to exploit the public, and, furthermore, it is bound to lead to Government interference. Universal experience has shown that large corporations can preserve their position only if they follow the policy of discouraging the rise of dangerous competitors by the cheapness and excellence of their productions and services, and if they make Government interference impossible by preventing complaints, by treating the public with the most scrupulous honesty and fairness.

Consolidation in industry and commerce leads as a rule not to the establishment of a single monopoly and the complete disappearance of competition but to the rise of a few giant concerns which keenly compete with one another. Professor Hadley wrote in his book *Economics*:

> It is commonly assumed that the more competitors you have, the greater will be the intensity of competition. But in actual experience there is no competition in the world so intense as that which prevails between two highly organised bodies that stand opposed to one another. In the old days of small concerns there was much more slackness of management and much larger profit per unit of product, than we find to-day. It is proverbial that the largest houses can make the closest calculations in selling goods at a slight margin above expense; and competition is generally strong enough to force them to make these calculations closer than would have been deemed possible a half-century ago—in other words, to keep down profits.

President Roosevelt, the enemy of extortion and of abuse of power on the part of the American Trusts, and the friend of labour and of the "square deal" in industry, wrote in his last work, *The Foes of Our Own Household*, published in September, 1917:

> Big work can only be done by big business, and Government must courageously but intelligently control big business.

See that labour is paid a first-class wage, and then that it gives first-class work for the first-class wage. Exempt plain food and plain clothing and all the necessities for simple life and family rearing from taxation. Let incomes bear substantial progressive taxes, but not on the basis of class envy; and initiate a national policy of heavy progressive inheritance taxes.

So much for the immediate needs of the moment. Let us meet them instantly, and let us, furthermore, begin to secure industrial justice—the square deal—for the future. The first essential is to rid ourselves of the cant and hypocrisy of those who, usually for improper political reasons, seek to persuade people that large-scale business concerns, including the so-called trusts, owe their growth to the tariff or to governmental corruption, and should be destroyed, not controlled in the public interests. The politicians who take this attitude work nothing but mischief.

Unlimited cut-throat competition between small and weak concerns is not now possible, and, if possible, it would be wholly undesirable . . .

We must face the fact that big business has come to stay, and that it cannot be abolished in any great nation under penalty of that nation's slipping out of the front place in international industrialism During the quarter of a century preceding the present war, England slipped back in business leadership compared to Germany, precisely because in Germany they were beginning to do business on a large scale, by huge combinations. The vital point was that the State when necessary, encouraged, and at the same time supervised and controlled, these big combinations, securing justice and reasonably fair treatment among capitalists, managers, salaried experts, and wage-workers, all of whom had some voice in, some control of, at least certain parts of their common business.

In the world of international industry the future belongs to the nation which develops either the big-scale businesses, or else the ability among small-scale business men, working-men, and farmers, to co-operate, to work together and pool their resources for production, distribution, and the full use of scientific research; or else, what is most desirable, develops both types of business. The small individualistic business cannot compete in any field in which either of the other types flourishes. Therefore, whether we like it or not, we must either permit and encourage the development of these two types or fall behind other nations, as Spain once fell behind England and France.

Our duty is not with futile obstinacy to try to stop the new movement, but to guide and control it, to encourage it, and yet to make it subservient to the common good. If we face it in this spirit we shall speedily find that it is far from representing mere evil. On the contrary, it is precisely the strong, wealthy, prosperous business concerns which can afford to treat their working-men as in the interest of the commonwealth it is imperative that they should be treated. Only it is necessary that the Government shall possess such control, shall exercise such supervision over them as to insure the use of their giant and prospering strength in the common interest. It would be as unwise, even if it were possible, to exterminate big corporations as to exterminate big labour unions. But it is eminently wise for the Government to itself make the people a partner of both, to supervise the relations of each to the other and of both to the general public, and gradually to substitute the principle of co-operation for that of devil take the hindmost.

I would draw particular attention to President Roosevelt's words, "make the people a partner." President Roosevelt vaguely felt that industry based upon the wage system had had its day, that it would be necessary to create in some way or other an identity of interests between capital and labour.

In most cases great industrial consolidations lead not to a single monopoly. Neither the huge United States Steel Trust nor the gigantic Standard Oil Company possess a complete monopoly. However, there are industries, such as the transport business, in which the creation of a single and complete control is of the greatest benefit to the public. Professor Hadley wrote in his book *Economics*:

The attempt to have two independent agencies perform any of the distributing services like water, gas, telegraphs, or railroads, for a single community is apt to result in loss to the producer and inconvenience to the consumer. So much of the expense of delivery of water or gas is connected with the laying of mains that a system which duplicates these mains is a public burden. So much of the advantage of the telephone service to each subscriber lies in the power of reaching all the other subscribers that the existence of two competing exchanges in the same city destroys the usefulness of both. In railroad transportation a single organised company can put lines just where they are needed, and run trains at the time when the public wants them. If the same service is performed by two companies there will be unnecessary duplication of lines in some places and failure to build needful ones in others; while the train times and train connections will be arranged, not with regard to the maximum convenience of the public, but with a view to increase the business of one competitor at the expense of the other.

Both in the United Kingdom and abroad those industries have been most successful and most prosperous in which organisation, consolidation and concentration have been brought to the highest perfection, in which production is carried on on the most gigantic scale. The United States Steel Corporation makes more iron and steel than the whole of the United Kingdom; the Ford Company makes more motor-cars than the whole of Europe; the combination of American typewriter manufacturers makes more typewriting machines than the rest of the world. Before the War the great steel-makers of Germany had formed a combination, and all the principal chemical works of that country had done likewise. Not unnaturally British iron-producers, motor-car manufacturers, typewriter-makers, and chemical works, felt unable to compete successfully with such gigantic opponents, which possessed a most perfect organisation and practically unlimited funds, which were used both for trading and for developing the scientific side of industry. It is worth noting that the most successful British industries are those in which concentration has been carried farthest, and especially those which have fallen under a single control, which have virtually become trusts. Among these I would mention the great Coats cotton combine, the Wills Imperial Tobacco Corporation, and the Lever Soap combine.

Many of the expert Committees which were appointed by the Board of Trade and the Ministry of Reconstruction to examine the position of the principal British industries and to study their prospects after the War came to the conclusion that some important British industries had suffered and had become stagnant largely because they were carried on on too small a scale, that production on the very largest scale was required, that the rise of gigantic combinations under a single control in the United States and in Germany compelled Englishmen to abandon their old-fashioned methods and to create also huge up-to-date concerns. The findings of the various Committees were summarised and endorsed as follows in the important and most interesting Final Report of the Committee on Commercial and Industrial Policy After the War:

> In the two countries which have become our principal competitors in the world's markets, the United States and Germany, and in a lesser degree elsewhere, industry and trade have come to be largely controlled either by powerful concerns frequently resulting from the consolidation of a number of undertakings and operating on a very large scale, or by combinations of manufacturers.
>
> The individual manufacturer and merchant will find it increasingly difficult to keep abreast of technical progress and to meet effectively the competition of the powerful foreign consolidations and combinations to which we have referred, operating as these do under a single guidance and with great financial resources.

Combines in the United Kingdom have very rarely reached the last stage indicated above, and as a broad general statement it may be said that they have as a rule been formed in each case by quite a small number of firms engaged in the production of a narrowly limited class of goods (though many firms and companies are members of numerous combinations); that comparatively few have continued for any considerable period of time; that they have tended to limit their action to the regulation of prices; and that their activities in this respect in any particular branch of trade have on the whole been only intermittent. . . .

A report presented to the United States House of Representatives in 1913 enumerated over two hundred consolidations of varying degrees of magnitude, with the result that a very large portion of the field of United States industrial production is dominated by powerful monopolist or quasi-monopolist consolidations.

In Germany, on the other hand, though consolidations have not been absent, the form of combination which has been most generally adopted and has come to cover almost the whole field of German industry is the "Cartel," a terminable organisation formed primarily for the regulation of prices and for joint marketing abroad, but in consequence thereof undertaking (so far as is practicable with companies which retain a substantial measure of independence) the allocation of orders, standardisation, and the concentration of individual works on particular classes of products.

It is noteworthy that very few combines in the United Kingdom have done more than aim at the regulation of prices; their main preoccupation has been the limitation of competition.

Having pointed out that the disappointing position of many British industries was largely due to the fact that many small manufacturers working in isolation cannot possibly compete with large and very large concerns working under a single management, that such isolated concerns are bound to go under if pitted against modern giant combinations in which the industries of entire nations are united, the Committee recommended the formation of similar combinations in the United Kingdom. It declared such a development inevitable, and equally in the interest of capital and of labour. In well-weighed and impressive sentences it recommended:

> We are of opinion that if this country is to maintain its commercial position and effectively compete for its share of the trade of the world, many industries must be organised on modern lines and often on a larger scale than has been the case in past years. While the British manufacturer was often first in the field, his original works were laid out with a view to a comparatively small output as compared with what he is turning out to-day, and he now finds it no longer possible to work economically or to make adequate extensions.
>
> The establishment of joint selling organisations, such as are suggested by the various Trade Committees, involves the regulation of prices and some control of output.
>
> We believe that such development is not only desirable in some cases, but it is practically inevitable under modern economic conditions, and we think that the attitude of public opinion, of local authorities and of the State, which broadly speaking has hitherto been more or less avowedly antagonistic to the very principle of combination, must be modified.
>
> Whilst we are of opinion that combinations of work-people are beneficial to industry and should be encouraged, we also think that the interests of labour will not only not be prejudiced but will derive advantage from the encouragement of combinations or associations of employers on the lines we have indicated. Any united effort among employers which results in increased efficiency of production, or in the better and more economical distribution and marketing of the products of machinery and labour, or in greater financial stability, must ultimately be for the benefit of the worker, as calculated to provide a wider and more constant market, to secure steadier employment, and even to increase the demand for labour.

Further, experience seems to prove that, so far from associations of employers for trade purposes adversely affecting the wages of the workers, they supply organisations for the more complete investigation and discussion of rates of wages and conditions of employment, secure more uniform treatment of these questions within an industry, and generally exercise a steadying influence which leads to a higher level of wages and better conditions of employment than could otherwise be obtained. Broadly speaking, any united policy pursued by employers which promotes the efficient organisation of an industry must develop increased financial strength within that industry, and in this increased financial strength the workers will share. So far, therefore, from the interests of employers and workers being antagonistic in this matter, they are in our opinion, very largely identical.

To ensure that giant combinations, possessing virtually a monopoly, should not abuse their power, the Committee recommended publicity, the creation of a Government Department which, while supervising the operations of trusts and of trust-like combinations, would further their interests by placing at their disposal all the information obtained in the course of its investigations, and would prevent unjustified suspicion and alarm at the formation of these organisations on the part of the people. The Report stated

We think that, if serious efforts are to be made by British manufacturers and traders to organise themselves on the lines recommended by the various Trade Committees, which we have set out above, it is desirable that some means should be devised for securing to a responsible Government Department adequate information as to any combinations so formed, and that provision should be made for State investigation in special cases. We believe that this would be advantageous to the combinations themselves, since the knowledge that a power of investigation did exist and could be brought into operation whenever adequate cause was shown would be likely to have a moderating effect upon public opinion.

We think that the experience of the War has shown that it is particularly desirable that information as to all international combinations affecting the production of goods in the United Kingdom, or the restriction of the markets in which they may be sold, should be in the possession of some Government Department. On the other hand, it is in our judgment of great importance that Government intervention in, or control of, the operation of combinations should be carefully restricted to cases in which those operations can be clearly shown to be inimical to national interests

As industrial combinations and consolidations, such as trusts and cartels may according to ancient English law, be declared to be "association in restraint of trade" and therefore illegal the formation of such organisations is difficult for the agreements for combined action concluded between the various participants have no binding power and may be broken by any of them at will with impunity for they cannot be enforced in a court of law The Committee recognising that that position was highly prejudicial to industrial efficiency, frankly recommended that the law regarding restraint of trade should be amended so as to enable the British industries to modernise their organisation It stated

It has been represented to us, by the Federation of British Industries amongst others that any substantial progress in the direction of marketing combinations is dependent upon a revision of the law in this country as regards associations It is urged that it is "absolutely essential either that the law in regard to 'restraint of trade' should be so amended that the ordinary objects of associations, such as the regulation of prices or output, become legal objects and associations are consequently able, as in Germany to enforce their rules in this respect upon their members, or else some other legislation having the same effect, such as the conferring of a special legal status upon associations, should be passed."

We approve of combinations among manufacturers, All such combinations should, where necessary, be legalised so as to be enforceable between members. We think that combinations, to be of use to the trade of the country, should be upon lines aimed at co-ordinating production, promoting efficiency, economising waste, promoting home trade, facilitating export trade, and unifying selling arrangements. The ideal at which trade combinations should aim is the maximum of production at the minimum of cost.

Hitherto labour, imbued by the Marxian doctrine of the class war, though insisting upon the unlimited right of the workers to combine on the largest scale for the very purpose of restraining trade, has taken up an attitude of uncompromising hostility and of suspicion towards the employers who wish to combine, and has denounced and opposed all attempts at combination on the part of the capitalists. As long as the workers continue to see in the capitalists their enemies, they will continue that policy of hostility and suspicion, to the harm of the employers and to their own hurt as well. That attitude will be changed entirely as soon as the interests of employers and employed have become completely and permanently harmonised. As soon as capital and labour have become real partners, capital will look upon the industrial problems from the view-point of labour and labour from the view-point of capital. The two will no longer be enemies, but will feel that they are one and will act as if they were one.

The tariff policy of Great Britain has been shaped in the past, not by common sense, but by prejudice. The British trade unions are organisations for the protection of labour. They are absolutely opposed to that policy of free and unlimited competition and of cheapness which is dear to the Free Trade doctrinaires. The British workers, while passionately opposing the production of competitive goods by underpaid British labour, have in the past favoured the free importation of competitive goods made by underpaid foreign workers, to their own injury. They have done so probably chiefly because the protection of the national industries by means of a Customs tariff was advocated by the employers, the capitalists.

The prosperity of the British industries and of the workers engaged in them—nay, the solvency of the country—depend on a large export trade, for the huge quantities of necessaries, such as food and raw materials, which must be imported from abroad can be paid for only with manufactured exports. It is a common experience that industries cannot develop a large export trade unless they dominate the domestic market. Mr. Carnegie wrote in his *Empire of Business*:

> At first European makers could "dump their surplus" upon the market and force American makers to accept for their entire output the extreme low rates which had only to be taken by the invader for a small part of his. The party in control of a profitable home market can most successfully invade the foreign markets. In recent years it is the American manufacturer who is "dumping his surplus" in foreign territory. First conquer your home market and the foreign market will probably be added to you is the rule with manufactures in international trade.

Great Britain can hope to follow a sane and sensible tariff policy only when the workers have learned that they cannot benefit themselves by ruining the capitalists, when the interests of capital and labour have become identical.

Many of those who regard merely the surface of things have begun to despair of Great Britain because of the "wrong headedness" and the "unreasonableness" of labour. They complain that the workers follow a policy destructive to the industries by which they live; that their demands are unreasonable and insatiable, and that failure to concede their most fantastic wishes leads to wanton strikes, that the best-paid workers are the least contented.

and are most ready to bring industry to a standstill. The general policy of British labour has hitherto been shaped by its hostility to capital and the capitalists. The fact that the best-paid workers are the least contented seems extraordinary, but it is, after all, not unnatural. Professor Hadley wrote:

> "Just because the labourer has so many advantages as a consumer he is often led to feel more keenly his lack of independence as a producer. Increased comfort is attended with increased ambition.

Lord Leverhulme caustically wrote in his book *The Six-Hour Day:*

> If high wages, short hours, good housing, meant finality to labour unrest, then labour would not be a man, but a vegetable.

That great and broad-minded employer of labour significantly added:

> To harmonise capital and labour a ladder must be provided from the humblest position in industrial organisation to a seat on the Board of Directors. Capital must provide a broader outlook for labour.

Some of labour's critics are particularly exasperated with the workers because the first condition put forward by men who have gone on strike, even if they have done so under the most wanton and the flimsiest pretexts, is that they will not return to work unless they are absolutely assured that there shall be no "victimisation," that their leaders, if ever so misguided or mischievous, shall be reinstalled. There is, of course, an explanation for this attitude which, though highly inconvenient to employers, has its admirable side. Mr. Carnegie wrote very sensibly in his *Gospel of Wealth:*

> The safety of its leaders is the key of labour's position. To surrender that is to surrender everything. Even if

the leader in question had not been as regularly at work as other men, even if he had to take days now and then to attend to official duties for his brethren, the superior of that man should have dealt very leniently with him. The men cannot know whether their leader is stricken down for proper cause or not; but, at the same time, they cannot help suspecting. And here I call the attention of impartial minds to the elements of manhood and the high sense of honour and loyalty displayed upon the part of working-men who sacrifice so much and throw themselves in the front of the conflict to secure the safety of their standard-bearers Everything reasonable can be done with men of this spirit

The loyalty they show to their leaders can be transferred to their employers by treating them as such men deserve. Society has nothing to fear from men so staunch and loyal to one another Nor is the loyalty shown in this instance exceptional, it distinguishes working-men as a class. One hour of courtesy on the part of the employers would prevent many strikes, whether the men ask in proper manner for interviews or observe all the rules of etiquette is immaterial We expect from the presumably better-informed party representing capital much more in this respect than from labour; and it is not asking too much of men entrusted with the management of great properties that they should devote some part of their attention to searching out the causes of disaffection among their employees, and, where they exist, that they should meet the men more than halfway in the endeavour to allay them. There is nothing but good for both parties to be derived from labour teaching the representative of capital the dignity of man as man. The working-man, becoming more and more intelligent, will hereafter demand the treatment due to an equal.

Some believe that the workers are discontented because they are too well off, and they recall with regret the olden days when wages were low, when the wage-earners could not read and did not possess the vote, and when harmony reigned between masters and men High wages, though they need not satisfy the men, have their great advantages from the national point of view. Professor Hadley wrote:

> Under the existing social order men who are capable of higher things multiply recklessly through sheer hopelessness. With men like this, a better distribution of the results of labour would doubtless operate not only to increase their productive efficiency, but to contribute to their prudence in marrying, and thus to diminish the birth-rate. . . .
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> If a large part of the community had been educated to demand something besides cheap food and to exercise self-restraint in the multiplication of numbers until it is possible to provide a high standard of comfort, we shall have a relatively smaller demand for food and a relatively larger demand for those comforts and luxuries which are the product of higher intelligence and require a higher rate of pay in order to enable the producer to furnish them to advantage.

Friction between capital and labour has very greatly increased of recent years for various reasons, and particularly owing to the concentration of industry. A small workshop or factory is like a family. Misunderstandings between the master and a few workers are rare. Dissatisfaction is soon noticed, and differences are rapidly and easily settled. The larger the industrial enterprises grow and the more men they employ, the greater becomes the chasm which separates the employer from the employee. Working-men often complain of the soullessness of modern industry, of the inhumanity of the great industrial machine. It is difficult to prevent misunderstandings and dissatisfaction leading to strikes or lock-outs in the case of huge modern concerns which employ thousands, and sometimes hundreds of thousands of workers, but much can be done by judicious action. Mr. Carnegie recommended in *The Gospel of Wealth:*

> We assemble thousands of operatives in the factory and in the mine, of whom the employer can know little

or nothing, and to whom he is little better than a myth. All intercourse between them is at an end. Rigid castes are formed, and, as usual, mutual ignorance breeds mutual distrust. . . .

It is not the intelligent workman, who knows that Labour without his brother Capital is helpless, but the blatant, ignorant man, who regards capital as the natural enemy of labour, who does so much to embitter the relations between employer and employed. . . . As men become intelligent, more deference must be paid to them personally and to their rights, and even to their opinions and prejudices; and upon the whole a greater share of profits must be paid in the day of prosperity to the intelligent than to the ignorant workman. He cannot be imposed upon so readily. On the other hand, he will be found much readier to accept reduced compensation when business is depressed; and it is better in the long run for capital to be served by the highest intelligence, and to be made aware of the fact that it is dealing with men who know what is due to them, both as to treatment and compensation. I have noticed that the manager who confers oftenest with a committee of his leading men has the least trouble with his workmen.

What we must seek is a plan by which the men will receive high wages when their employers are receiving high prices for the product, and hence are making large profits; and, *per contra*, when the employers are receiving low prices for the product, and therefore small if any profits, the men will receive low wages. If this plan can be found, employers and employed will be "in the same boat," rejoicing together in their prosperity, and calling into play their fortitude together in adversity. There will be no room for quarrels, and instead of a feeling of antagonism there will be a feeling of partnership between employers and employed.

I believe that the next steps in the advance toward permanent peaceful relations between capital and labour are—

First, that compensation be paid the men based upon a sliding scale in proportion to the prices received for product.

Second, a proper organisation of the men of every works to be made, by which the natural leaders, the best men will eventually come to the front and confer freely with the employers.

Third, peaceful arbitration to be in all cases resorted to for the settlement of differences which the owners and the Mill Committee cannot themselves adjust in friendly conference.

Fourth, no interruption ever to occur to the operations of the establishment, since the decision of the arbitrators shall be made to take effect from the date of reference.

If these measures were adopted by an establishment, several important advantages would be gained.

First, the employer and employed would simultaneously share their prosperity or adversity with each other. The scale once settled, the feeling of antagonism would be gone, and a feeling of mutuality would ensue. Capital and labour would be shoulder to shoulder, supporting each other.

Second, there could be neither strike nor lock-out, since both parties had agreed to abide by a forthcoming decision of disputed points. Knowing that in the last resort strangers were to be called in to decide what should be a family affair, the cases would indeed be few which would not be amicably adjusted by the original parties without calling in others to judge between them.

Mr. Carnegie achieved a considerable measure of success with the policy of conference, conciliation, and fairness outlined by him, but he failed to establish permanently peaceful relations between capital and labour, as he had hoped, for he experienced very serious strikes. His failure was only natural. As long as the aims and interests of capital and labour are not identical, capital may try to take unfair advantage of labour and labour of capital. Consequently one side is apt to suspect the other side, and mutual distrust leads to differences which cannot be adjusted by discussion, arbitration, etc. Thus, settlement becomes a question, not of right, but of power, and the result is the usual violent conflict between capital and labour, which leaves behind it a harvest of resentment on one side or on both.

The policy of conference leading to voluntary or compulsory arbitration has failed hitherto, and will probably continue to fail, to conciliate permanently capital and labour, because it cannot bridge over the chasm which separates the two. The reason of that failure lies not in the stubbornness or the short-sightedness of the employers or of the workers: it springs from a deeper cause. The differences between capital and labour have hitherto proved unadjustable, except temporarily, and are growing from year to year in extent and in intensity, because industry, especially if carried on on a large or on a very large scale is autocratic, not democratic, in character: because men who have been brought up to love and admire freedom and independence resent being absolutely dependent upon their employers and their weekly wage, however large that wage may be, resent having to submit unconditionally to the quasi-military discipline of the factory, resent being mere wheels in a gigantic machine. The industrial system, which was evolved in feudal times, has preserved its feudal character, and herein lies the reason that it is breaking down. The task of democratising it imposes itself imperiously. Some of the political and industrial leaders have begun to recognise that the root cause of labour unrest lies in the fact that political democracy and industrial autocracy are irreconcilable. President Roosevelt wrote in *The Foes of Our Own Household*:

> Our system, or rather no-system, of attempting to combine political democracy with industrial autocracy, and tempering the evil of the boss and the machine politician by the evil of the doctrinaire and the demagogue, has now begun to creak and strain so as to threaten a breakdown.

Lord Leverhulme wrote in his book, *The Six-Hour Day:*

> Modern industrial conditions, with thousands and tens of thousands of workmen, and in at least one industry a quarter of a million workmen, under one oligarchical rule are intensely anti-democratic, and as such violate the gregarious instincts of humanity. And just as it is true that the position of British industries to-day is the result of yesterday, so their position to-morrow will depend on our actions of to-day. Capitalists have now the task set them to democratise their system, and to create conditions that will enable labour to take some democratic share in management, and some responsibility for the success of the undertaking. Productive and distributive business must in the future be carried on under less oligarchic and under more democratic conditions. Labour will not be brought to work side by side with, and to harmonise with Capital merely by ever higher and higher wages, shorter and shorter hours, combined with better and better welfare conditions.
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> The wages system has broken down as a sole and only solution. As huge businesses have sprung into existence, the difficulties of the wages system as such have increased. It is impossible under the wages system alone to make Labour realise that the true interests of Labour and Capital are identical.

Democratic labour works for the capitalists, but it does so under protest. It protests, not against the individual employer, but against the system. It demands, more or less consciously, a share in the business, and threatens to destroy the capitalist system unless its demands are granted. Herein lies the reason that labour works grudgingly and produces as little as possible in return for the highest wage obtainable. That resentment has existed for a long time. The great co-operative movement of England was started as a protest against the wage system, and its object originally was to make the worker independent of the capitalist.

Socialist agitators have told the workers that they are "wage slaves," that the capitalist system is a system of "wage slavery." These bitter words have proved most potent weapons in the armoury of the agitator. They have caught on with the masses, and large numbers of workers have come to consider themselves as slaves of industry. There must evidently be some justification for the sentiment of revolt against dependence on a weekly wage, otherwise the term "wage slavery" and "wage slave" would not have become so popular. At any rate, the feeling that working for a weekly wage is a form of slavery exists and must be reckoned with by those who endeavour to study labour conditions and social conditions as they are.

If the dissatisfied wage-earners consider themselves slaves of the industrial system, the psychological and economic consequences springing from true slavery should apply to some extent to the modern labour problem. Professor Hadley compared the psychological and industrial consequences flowing from slavery and emancipation as follows

> The slave tended to keep his product as a minimum. . . . Any extra exertion or care redounded to the profit of the master, not of the slave. The inevitable result was low efficiency and great waste The more complicated the work to be done, the less was the chance of avoiding these evils. A slave-driver could compel those who were subjected to his rule to perform a certain amount of physical labour, but he could not compel them to exercise intelligence or zeal. . . .
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> The more intelligent and ambitious the labourer, the greater will be the difference between his minimum product which he creates as a serf and his maximum product which he can create as a freeman; the greater, therefore, will be the possible advantages to all parties from emancipation.

These significant phrases deserve to be pondered upon. By emancipating the wage-earners, by making them full artners in industry and commerce, it should be possible o double and treble their output and the prosperity of he whole nation.

Some far-seeing Americans and Englishmen have begun o recognise that the wage system is opposed to the modern spirit, and that it requires either abolition by placing all the living energies of a nation under an all-powerful bureaucracy—a solution which is favoured by Socialists and dreamers—or amendment on individualist ines. The latter course is recommended by far-seeing and practical business men and statesmen who recognise that if the Socialists were allowed to put their theories into practice they would create confusion and might destroy modern civilisation. Mr. Carnegie wrote on the first page of his *Gospel of Wealth:*

> The problem of our age is the proper administration of wealth, that the ties of brotherhood may still bind together the rich and poor in harmonious relationship.

Mr. Roosevelt, with the vision of a seer, stated in his last book, *The Foes of Our Own Household.*

> There can and will come—gradually and by evolution, not revolution—a shift in control which will mean that the competent workers become partners in the enterprise. This partnership must mean not only a sharing of profit, but a sharing in the guidance and management; and therefore it can only come step by step, as the wage-workers grow out of the narrow envy and jealousy which make so many men resent superior ability and strive to deny it proper reward.
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> It is not necessary that the Van Hornes and the Jim Hills of the future shall receive the enormous financial reward they have had in the past; but it must be substantial, or they will not lead to success the business in which the brakemen, switchmen, engineers, firemen, will, we hope, ultimately become part owners as well as workers. Such leadership is absolutely needed by the men below

and it must be handsomely paid for; there is no more mischievous form of privilege than giving equal rewards for unequal service, and denying the great reward to the great service. But it need not be a reward fantastically out of proportion to the reward of the men beneath. . . .

When the workers themselves recognise the need of able, highly skilled, and well-paid managers and leaders, they will be able themselves to own and control great industries. But until this is done a great industry can no more be managed by a mass-meeting of manual labourers than a battle can be won in such fashion, than a painters' union can paint a Rembrandt, or a typographical union write one of Shakespeare's plays. . . .

It is simply common sense to recognise that there is the widest inequality of service, and that therefore there must be a reasonably wide inequality of reward, if our society is to rest upon the basis of justice and wisdom. Service is the true test by which a man's worth should be judged. We are against privilege in any form; privilege to the capitalist who exploits the poor man, and privilege to the shiftless or vicious poor man who would rob his thrifty brother of what he has earned. Certain exceedingly valuable forms of service are rendered wholly without capital. On the other hand, there are exceedingly valuable forms of service which can be rendered only by means of great accumulations of capital, and not to recognise this fact would be to deprive the whole people of one of the great agencies for their betterment.

The test of a man's worth to the community is the service he renders it, and we cannot afford to make this test by material considerations alone. One of the main vices of the Socialism which was propounded by Proudhon, Lassalle, and Marx, and which is preached by their disciples and imitators, is that it is blind to everything except the merely material side of life. It is not only indifferent, but at bottom hostile, to the intellectual, the religious, the domestic and moral life; it is a form of communism with no moral foundation, but essentially based on the immediate annihilation of personal ownership of capital, and, in the near future, the annihilation of the family, and ultimately the annihilation of civilisation.

In his address to Congress, delivered on May 20, 1919 President Wilson said:

> We cannot go any farther in our present direction. We have already gone too far. We cannot live our right life as a nation or achieve our proper success as an industrial community if capital and labour are to continue to be antagonists instead of being partners, if they are to continue to distrust one another and contrive how they can get the better of one another, or—what perhaps amounts to the same thing—calculate by what form and degree of coercion they can manage to extort on the one hand work enough to make enterprise profitable; on the other, justice and fair treatment enough to make life tolerable. That bad road has turned out a blind alley. It is no thoroughfare to real prosperity. We must find another, leading in another direction and to a very different destination. It must lead not merely to accommodation, but also to a genuine co-operation and partnership based upon a real community of interest and participation in control. There is now, in fact, a real community of interest between capital and labour, but it has never been made evident in action It can be made operative and manifest only in a new organisation of industry. The genius of our business men and the sound practical sense of our workers can certainly work such a partnership out when once they realise exactly what it is that they seek and sincerely adopt a common purpose with regard to it.

Being convinced that the wage system was the principal cause of industrial unrest, many Englishmen and Americans have experimented in profit-sharing and co-partnership, but, except in a few and relatively unimportant cases, the various attempts at giving labour a share in the business have failed. They have failed, not because the idea of labour sharing profits with capital is wrong, but because the right formula had not been discovered. A plain and simple formula may achieve great things in the labour world. That is proved by the history of the co-operative movement. Co-operation among the workers is a very old idea. It had been tried innumerable times both in England and abroad, but all the experiments had proved disastrous. A few English workingmen at last thought out, or stumbled upon, the right principle. Twenty-eight poor Rochdale workmen, flannel-weavers, etc., came together and resolved to form a co-operative society in order to be able to buy tea and sugar more advantageously. They collected a fund of £28, by twopenny and threepenny subscriptions, and opened a tiny shop in Toad Lane in December, 1844. Having discovered the right principle and formula, they prospered, and the little enterprise grew to truly gigantic proportions. The Report of the Control Board of Co-operative Societies placed before the Co-operative Congress held in Liverpool, 1918, stated.

> At the end of 1916 there were at work in the United Kingdom 1,488 industrial co-operative distributive and productive societies with an aggregate membership of 3,563,769; a total share, loan, and reserve capital of £77,937,736; a total trade (distributive and productive) of £237,525,135, and a total profit—before deduction of interest on share capital—of £18,958,388. The total number of persons directly employed by the societies was 154,622, and the total wages paid during the year amounted to £10,391,245, compared with 149,852 employees and £9,607,434 in wages in 1915.

By discovering, or stumbling upon, a simple and practical formula, the twenty-eight poor workmen of Rochdale have created one of the largest and one of the most powerful businesses in the world, which employs a vast army of workers.

Profit-sharing, to be successful, should have three features. In the first place, it should offer so substantial a benefit to the workers as to make it of very considerable value. In the second place, it should apply to all the workers of an undertaking without exception, for otherwise those who do not share in the profits will quarrel with those who do. Besides, as the non-profit-sharers might begin a strike and pull out the unwilling profit-sharers, strikes would still be possible. In the third place, the scheme should be of the utmost simplicity, so as to make its attractiveness and fairness clear to all.

In order to cause all the workers, let us say of a factory, to participate in the sharing of profits, no contributions and no investments of money on the part of the workers should be required. The share capital of the concern should be increased by a very substantial sum, let us say by 30, 40, or 50 per cent. The new capital so created would belong to the workers collectively and be vested in them by deed. There might be trustees to look after the workers' interests. The dividends accruing to these workers' shares would be lumped together and would be distributed among the foremen workers, etc., in accordance with their half-yearly earnings, careful allowance being made for illness, etc. The half-yearly distribution of such dividends would, of course, keenly interest the workers. They would see in them at first merely a windfall, a "bonus" of so many pounds.

In order to increase their interest in the business, one or several generally respected workers should be selected by the directors and shareholders and be invited to join the Board of Directors. These workmen-directors should have a twofold function. they should assist the other directors in the usual way, and in addition they should keep the workers constantly informed as to the course of the business. They would thus act as an invaluable connecting-link between the management and the employees. They should issue frequently, and at regular intervals, to the workmen-shareholders reports, or bulletins, as to the progress of the factory, sales, prices, etc., and address them occasionally at special works meetings, where subjects of interest to the management and the men, such as the introduction of new machinery, or improved organisation, or of an alteration in the rates paid, might be discussed.

Hitherto the great body of workers has consisted of wage-drawers who have been far more interested in sporting events than in the business in which they spend their lives. Their half-yearly "bonus," or dividend, which would be liable to great fluctuations, and the amount of which would depend on the fortunes of the factory, would arouse in them a keen interest in the profits of the establishment. They would cease to believe that it is immoral to carry on a business for private profit, as the Socialists have told them, and they would no longer resist piece wages and the introduction of improvements which tend to increase output, sales, and profits. They would suggest to the management, through the workmen-directors, economies and improvements, especially as keenness and ability might lead eventually to a seat at the Board table. Innumerable improvements in machinery have been suggested by those who constantly use it. Workmen have made countless valuable inventions. Profit-sharing on a substantial scale, combined with full rewards for valuable improvements suggested, would stimulate the spirit of invention and emulation among the workers to the utmost.

Having a substantial share in the profits of the undertaking, all inducements to antagonise capital by striking, by keeping production low, by opposing the introduction of machinery, by insisting upon unduly short working hours, etc., would be gone. Strikes would become practically impossible. The loss caused to the factory by a strike would, of course, reduce profits, and would therefore considerably affect the substantial dividend bonus of the workers. If they struck work, they would no longer act against the capitalists, but would strike largely against themselves, which would be absurd.

The men would soon discover that increased production meant increased profits and increased bonuses at the half-yearly distribution. The working-men themselves would therefore begin to enquire why So-and-so in Yorkshire or in Massachusetts makes a large profit and their own factory a small one. They would compare the dividends paid among the various works, and would urge the management of their own factory, through the workmen-directors, to remodel the plant, to reorganise the sales department, to introduce piece work, or to amalgamate with other concerns.

It may be objected that the increase of the share capital by 30, 40, or 50 per cent—I should prefer the larger figure—would lead to a very serious shrinkage in the dividends paid to the original shareholders and to a considerable reduction in the value of the original shares which would entail unmerited suffering. At first sight that objection would seem justified. However, if, as is to be anticipated, output and profits should under the system proposed be doubled and trebled, the profits and dividends of the factory should increase at a similar ratio. I have shown in previous chapters, by means of authentic statistics, that the American workers produce on an average from two to three times as much per head, both gross and net, as do their British colleagues engaged in the identical callings. It can therefore not be doubted that, with improved organisation and an improved mechanical outfit, British production per worker can be brought up to at least the American output. But the doubling and trebling of production is possible only if the workers cease antagonising capital and co-operate with the management with cordial goodwill.

A financier often purchases a number of competitive undertakings at an exaggerated price, adds to the inflated sum paid for them a large promoter's profit, and creates a huge company or trust, which has often double the nominal capital possessed by the undertakings of which it is composed. Very frequently it is found that the new undertaking earns without difficulty large dividends of the greatly inflated capital, because amalgamation has led to both increased efficiency and vast economies. The operation described is a commonplace of finance. In carrying through such an operation, the organising financier does not swindle the public, as people often assert. He merely increases very greatly the efficiency and productive power of industry, and capitalises the prospective profits arising from the amalgamation of the various competitive undertakings. By increasing the capital of the factory by 30, 40, or 50 per cent., and vesting the new shares in the workers collectively, the directors would merely capitalise the prospective profits arising from gaining the permanent goodwill of the workers and permanent industrial peace.

Hitherto the workers have been reluctant to invest their savings in the factory in which they are engaged, and they have quickly sold bonus shares which were given them. As collective shareholders they would become interested in the working of the concern, and through the periodical statements relating to the business, the reports of their own directors, and the discussions at works meetings, they would become intimately acquainted with the commercial and financial aspects of the undertaking. They would therefore begin to feel greater confidence in its stability, and be willing to be not only collective shareholders, but individual shareholders by purchase as well. They would probably begin by investing their bonus dividends in shares, but no pressure should be put on them to do so. Opportunities should be furnished for their putting money into shares.

The British industries suffer from lack of modern outfit, from an insufficiency of capital invested in them. In 1907–1909 the capital invested in industry per worker was £483 in the United States, and only £212 in the United Kingdom. The necessary additions to the plant might be made largely by the workers themselves out of savings. It would be all to the good if their share in the undertaking would be increased far beyond the collective share allotted to them, if half the capital and more would be owned by the workers themselves. No one restricts output or hours who is working for himself The motto of the workers should become "Shareholders all, managers all, capitalists all." The most successful undertakings would probably be those in which the workers themselves held the larger portion of the shares, and those in which the dividends paid to the workers were particularly great. It is conceivable that in some cases speeding up would cause the workers' dividends to exceed their wages.

It is frequently asserted that the workers are so poor that they cannot own industrial undertakings, such as factories. That belief is quite erroneous. In 1907, the year in which the British Census of Production was taken, the capital invested in the British industries came to £212 per worker. In some industries the amount was higher and in some it was lower. That sum should be within reach of many wage-earners. The future might see factories arise owned exclusively by the men employed, and they ought to be among the most successful.

The plan of profit-sharing outlined has the great advantage of being easily applicable to the large and the very large undertakings in which labour troubles are particularly frequent. It can as readily be applied to railways, shipping companies, docks, warehouses, coal-mines, etc., as to factories, if there is a large margin of prospective profit owing to the possibility of increasing efficiency in production. The plan is, of course, particularly advisable in those numerous cases in which output is unduly low owing to the unwillingness of the workers to increase it. In those industries in which production per worker is extremely high, the introduction of profit-sharing might not be advantageous to the original shareholders. Hence the project seems more suitable for a country of low and deliberately restricted individual production, such as Great Britain, than for a land where high individual production is general, such as the United States.

At present many factories suffer because the unions insist upon uniformity of wages regardless of the financial position and profits of the various undertakings. If the profit-sharing system described should be introduced, and if it should catch on and become general, the trade union wages rate would still be uniform, but there would be a great variety of earnings owing to the bonus-dividends added, the amount of which would depend partly on the ability of the management, but chiefly on the intelligent co-operation of the workers themselves.

The introduction of general profit-sharing in the industries would profoundly alter the character of the trade unions. They were created to fight capital. They were engines of war. Henceforth their attitude would change, for their war would be won. The Socialists would no longer try to permeate and to dominate them. They would become peaceful institutions engaged exclusively in promoting the social welfare of the workers and the prosperity of the industry in which their members are engaged. In character and in scope they would resemble the Manufacturers' Associations, Employers' Associations, and Chambers of Commerce, with which they would work hand in hand. Socialism, Nationalisation, Syndicalism, and Bolshevism, would lose their attractiveness. The business of those agitators who live by creating strife between capital and labour would be gone for ever.

The introduction of practically universal profit-sharing would at last realise the hope that employers and employed, rich and poor, would cordially and fraternally co-operate, which has been expressed by the greatest statesmen and thinkers from Plato and Aristotle to Abraham Lincoln and Roosevelt. A new industrial era would begin.

I have put forward the ideas expressed in the foregoing in the hope that the plan proposed will solve the industrial problem, establish permanent harmony between capital and labour, and introduce all the benefits claimed by the advocates of Socialism without leading to robbery and confusion, and all the benefits claimed by the champions of Nationalisation without introducing the blight of bureaucracy. I have put forward these ideas in the hope that the plan proposed will make capital and labour, the two forces which seem eternally divided and irreconcilable, one and indivisible, and that it will greatly strengthen the beneficent power of individualism while divesting it of the stigma of greed and injustice which its enemies have striven to fasten upon it. I hope that the arrangement outlined will be found to be practical, workable, and logical.

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BY J. ELLIS BARKER

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